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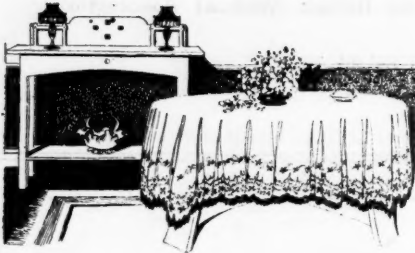
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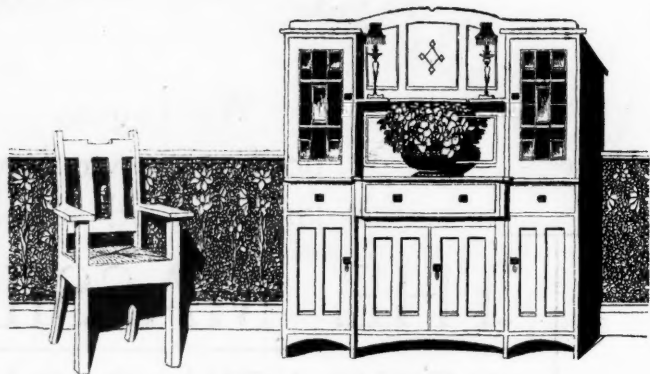


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Table of Contents

	Page.		Page.
ORIGINAL ARTICLES—		ABSTRACTS FROM CURRENT MEDICAL LITERATURE—	
The Effect of Legislative Control of the Incidence of Ante-Natal Syphilis, by J. H. L. Cumpston, M.D., D.P.H.	133	Pathology	146
Some Remarks on Dento-Alveolar Sepsis, by Wilfred B. Dight, M.B., Ch.M.	136	Pædiatrics	146
Radiography and Dental Affections, by J. G. Edwards, M.B., M.S., and W. A. Edwards, M.B., B.S.	138	BRITISH MEDICAL ASSOCIATION NEWS—	
UNIVERSITY INTELLIGENCE—		Scientific	148
The University of Sydney	141	CORRESPONDENCE—	
University of Melbourne	142	The Wassermann Test	150
LEADING ARTICLES—		Queensland Nurses' Award	151
The Defence Medical Services	143	Infectious Diseases and the Public Health Departments of the Australian States	151
THE WEEK—		BOOKS RECEIVED	152
A Filter Passer in Influenza	144	MEDICAL APPOINTMENTS VACANT, ETC.	152
To Members	145	MEDICAL APPOINTMENTS—IMPORTANT NOTICE	152
NAVAL AND MILITARY	145	DIARY FOR THE MONTH	152

THE EFFECT OF LEGISLATIVE CONTROL ON THE INCIDENCE OF ANTE-NATAL SYPHILIS.

By J. H. L. Cumpston, M.D., D.P.H.,
Director-General of Health.

The legislation for the control of venereal diseases has now been in operation sufficiently long in some of the States to permit, by comparison with other States in which it has only recently come into effect, of a study of results in certain directions.

The *Venereal Diseases Acts* were passed in the various States as follow:

Western Australia, December, 1915;
Victoria, December, 1916;
Tasmania, February, 1917;
Queensland, February, 1917;
New South Wales, December, 1918;
South Australia, December, 1920;

and regulations giving administrative expression to the powers contained in these Acts came into force as follow:

Victoria, May, 1917;
Tasmania, September, 1917;
Queensland, October, 1917.

In New South Wales and South Australia the Act had not, at the time of writing, actually been brought into operation.

A study of the effects of the legislation and corre-

lated administrative machinery may be attempted in various ways, but an accurate study is only possible with the aid of statistical data. The directions in which statistics are available, are very limited. The numbers of cases notified under the Acts afford no suitable basis for study of results, as not only are these open to the error of duplicate notification, but there is no information for two of the States and no information for any of the States for the period prior to the operation of the Acts. The only direction in which there are reliable statistics available in any sufficient quantity, is that of ante-natal infection. It is possible to consider the infantile mortality at under one month or under three months for each of the States for a series of years before and after the operation of the legislation; and the interest of these figures is increased by the fact that, although in New South Wales there has been no legislative control, there has been an extensive treatment of these diseases by the out-patient clinic system.

The nosological nomenclature in use by the Commonwealth Statistician offers as appropriate causes of death "congenital malformations" and "congenital debility."

It might be thought, if the venereal disease control legislation were producing the result expected of it, that the deaths due to these causes would show a definite reduction in proportion to the births, as it is

reasonable to assume for the present purpose that congenital syphilis plays a considerable part in the mortality of the first three months of infant life.

The two tables attached show the mortality figures for each of these causes of death and for the sum of the two for a period of ten years, during which the statutes have been in operation in various States for varying periods. The tables deal with the mortality in the first month and in the first three months respectively. (Table A and Table B.)

It is obvious from a scrutiny of the tables that no State, whether with or without legislation, shows any improvement throughout the period, either in the one month or the three months period.

The relationship of this fact to the administrative

campaign against venereal diseases is capable of discussion from alternative aspects.

Either the mortality at the ages under discussion is not the result of venereal infections or the measures now in operation against venereal diseases are not materially or favourably affecting mortality from congenital venereal infections.

A letter by Fairley and Fowler in this number of the *Journal* is one of the most important contributions to this subject which has appeared, and represents the type of inquiry which is urgently needed in Australia.

The fact that 9.75% of all women attending the maternity department of the Women's Hospital in Melbourne showed a strongly positive Wasser-

COMMONWEALTH OF AUSTRALIA.
Total Deaths Under One Month per 1,000 Births in the Year.

Year		New South Wales	Victoria	Queensland	South Australia	West Australia	Tasmania
1910	Malformations	1.7	2.04	2.35	1.80	2.50	1.61
	Congenital Debility.. ..	18.5	19.24	16.51	15.65	16.88	21.84
	Total	20.2	21.2	18.8	17.4	19.3	23.4
1911	Malformations	2.06	1.74	2.42	2.71	1.23	1.29
	Congenital Debility.. ..	18.58	17.44	15.43	13.56	18.78	16.92
	Total	20.5	19.1	17.8	16.2	19.9	18.1
1912	Malformations	1.89	2.57	2.67	1.82	2.30	0.85
	Congenital Debility.. ..	18.78	18.38	16.33	18.46	20.14	21.01
	Total	20.5	20.8	18.9	20.2	22.4	21.8
1913	Malformations	1.76	2.53	2.94	2.4	2.17	3.91
	Congenital Debility.. ..	20.25	18.79	16.98	17.58	17.79	20.73
	Total	21.9	21.2	19.8	19.9	19.8	24.6
1914	Malformations	2.11	2.90	2.46	2.87	3.04	1.00
	Congenital Debility.. ..	20.30	19.77	17.15	19.76	17.82	19.28
	Total	22.4	22.6	19.5	22.5	20.8	20.2
1915	Malformations	2.64	2.69	2.43	2.88	1.89	1.64
	Congenital Debility.. ..	21.76	21.99	17.46	20.17	17.97	24.47
	Total	24.3	24.5	19.8	22.9	19.7	26.0
1916	Malformations	2.59	3.30	2.96	2.70	2.80	1.77
	Congenital Debility.. ..	20.55	19.57	18.30	18.05	17.87	21.98
	Total	23.0	22.8	21.2	20.7	20.6	23.6
1917	Malformations	2.23	2.72	2.27	3.53	2.66	2.79
	Congenital Debility.. ..	19.24	18.01	17.54	17.84	16.37	16.56
	Total	21.4	20.7	19.7	21.3	18.9	19.2
1918	Malformations	2.54	2.88	3.12	2.64	3.24	1.52
	Congenital Debility.. ..	20.98	20.10	15.51	18.75	19.13	20.08
	Total	23.4	22.9	18.6	21.3	22.3	21.5
1919	Malformations	1.93	3.03	2.56	2.3	2.73	1.5
	Congenital Debility.. ..	24.23	23.1	18.4	21.7	17.7	24.4
	Total	26.1	26.1	20.9	24.0	20.4	25.9

mann reaction is, at least, presumptive evidence of extensive congenital infection and, when the examination of neo-natal infants shows an almost equal percentage of reactions, it establishes the "persistence of syphilis in the offspring of syphilitic mothers" and appears to dispose effectively of the suggestion that venereal infections play no part in the mortality at the ages under discussion.

The remaining alternative is of supreme interest to the hygienist who desires success in the attempt to control venereal diseases. If, as appears to be the case, the present measures are not favourably affecting ante-natal venereal infections, what is the reason?

It would be thought at first sight that the treatment of persons in Western Australia and in Victoria on the scale represented by a notification rate

of 113 per hundred thousand in the case of syphilis and of 350 per hundred thousand in the case of gonorrhœa would have had some effect in reducing ante-natal infections.

When further it is considered that of the total of notifications approximately 16% are of married persons, the conclusion cannot be avoided that while the present measures are very successful in certain directions, they are not sufficient to prevent the wastage of infant life from venereal infections. This is a consideration of the greatest national importance. Table "C" of Fairley and Fowler's letter is very suggestive, even though the numbers are small. The very high percentage of collaterals with positive reactions indicating the immensity of the reservoir of undiscovered and uncontrolled syphilis in the families

COMMONWEALTH OF AUSTRALIA.
Total Deaths Under Three Months per 1,000 Births in the Year.

Year		New South Wales	Victoria	Queensland	South Australia	West Australia	Tasmania
1910	Malformations	2.21	2.54	2.60	2.28	2.77	2.69
	Congenital Debility.. ..	21.37	22.30	18.00	19.45	20.70	29.54
	Total	23.5	24.8	20.6	21.6	23.4	32.1
1911	Malformations	2.50	2.10	2.94	3.07	1.48	2.21
	Congenital Debility.. ..	20.99	20.19	17.19	17.18	22.00	20.42
	Total	22.4	22.2	20.0	20.1	23.4	22.6
1912	Malformations	2.12	2.96	2.99	2.73	2.76	0.85
	Congenital Debility.. ..	21.19	21.12	18.25	21.19	22.79	25.67
	Total	23.2	24.0	21.1	23.8	25.4	26.4
1913	Malformations	2.13	3.003	3.45	2.46	3.04	4.42
	Congenital Debility.. ..	22.86	21.96	18.40	20.43	19.74	23.62
	Total	24.9	24.9	21.8	22.8	22.7	28.0
1914	Malformations	2.46	3.40	2.82	3.56	3.69	1.50
	Congenital Debility.. ..	22.91	22.56	18.46	22.01	20.1	23.1
	Total	25.3	25.9	21.2	25.5	23.7	24.6
1915	Malformations	3.21	3.14	2.98	3.05	2.66	1.71
	Congenital Debility.. ..	23.41	25.25	19.69	22.46	19.96	28.33
	Total	26.6	28.3	22.5	25.4	22.5	30.0
1916	Malformations	3.03	3.5	3.65	3.37	3.58	2.66
	Congenital Debility.. ..	23.08	22.31	19.88	21.00	19.39	24.64
	Total	26.0	26.3	23.4	24.3	22.8	27.2
1917	Malformations	2.67	3.09	2.63	4.15	3.17	3.35
	Congenital Debility.. ..	21.37	20.31	19.15	19.51	18.78	17.11
	Total	23.9	23.3	21.7	23.6	21.8	20.4
1918	Malformations	2.86	3.45	3.74	3.17	3.52	1.89
	Congenital Debility.. ..	22.86	23.20	16.99	20.96	20.55	24.05
	Total	25.6	26.6	20.6	24.0	24.0	25.8
1919	Malformations	2.43	3.54	2.9	3.2	4.03	1.6
	Congenital Debility.. ..	26.8	26.8	20.3	24.0	20.03	27.6
	Total	29.2	30.3	23.1	27.2	24.0	29.2

of infected persons points the way to further extension of the initial efforts to control syphilis.

The following administrative measures amongst others must receive earnest consideration:

- (a) Routine examination of the wife (or husband) and the children of the syphilitic.
- (b) Routine examination of every pregnant woman (which involves compulsory notification of pregnancy) and a proper organization to insure ante-natal examination.
- (c) The provision of facilities at strategic points for effective prophylaxis for immediate application after exposure to infection.

SOME REMARKS ON DENTO-ALVEOLAR SEPSIS.¹

By **Wilfred B. Dight, M.B., Ch.M. (Sydney)**,
Radiologist, Prince of Wales's Hospital; Honorary Assistant
Radiologist, Royal Prince Alfred, Royal Alexandra
(for Children) Hospitals.

History.

Duke, in his book "Oral Sepsis in its Relationship to Systemic Disease" (William W. Duke, M.D., Ph.B., Kansas City, 1918), asserts that Dr. Benjamin Rush, of the University of Pennsylvania, one of the signers of the Declaration of Independence and one of America's most noted physicians, was the first observer to write on the relationship between ill-health and defective teeth; the observations were commenced by him in 1801 and his article was written before the discovery of bacteria.

Rush refers first to a case of rheumatism in the hip-joint, accompanied by severe toothache. He says:

Suspecting the rheumatic affection was excited by the pain in her tooth, which was decayed, I directed it to be extracted. The rheumatism immediately left her hip and she recovered in a few days; she has continued ever since to be free from it.

His next recorded case was one of dyspepsia and toothache.

Her tooth, though no mark of decay appeared in it, was drawn by my advice . . . relieved next day . . . good health ever since. From the soundness of the external part of the tooth and the adjoining gum, there was no reason to suspect a discharge of matter from it had produced the disease in her stomach.

He quotes other cases where systemic complaints were shown to be intimately connected with and thought to be caused by tooth-troubles, the patients recovering after the extraction of decayed teeth.

In an article in *The Practitioner* of December, 1900, Dr. William Hunter says:

For the last twelve years . . . my attention has been called in increasing degree to an important and prevalent source of disease, one whose importance, I think, is not sufficiently recognized. The source is oral sepsis—sepsis arising in connexion with diseased conditions of the mouth.

My attention was first drawn to it in connexion with the pathology of anæmia; and since then it has been extended in connexion with the pathology of a great number of infective diseases which have one factor in common, namely, septic organisms underlying them.

One case I met with some two years ago . . . definitely proved the connexion between oral sepsis and an effect . . . so marked and so common that I have designated it by a special name septic gastritis.

Since then I have seen . . . cases illustrating both the frequency and the importance of the subject; illustrat-

ing, moreover, what I regard as even more striking—the extraordinary degree to which oral sepsis is overlooked, alike by all parties concerned—the physician, the surgeon, the patient.

I desire to point out how common a cause of disease it is, how grave are its effects, how constantly it is overlooked and what remarkably beneficial results can be got from its removal. It is not my purpose to select rare isolated cases from the literature . . . I shall illustrate the subject by cases from my own experience. In so doing, I shall draw attention for the first time to a new and hitherto unrecognized effect of prolonged oral sepsis, namely, toxic neuritis.

He goes on to point out that the manifestations of oral sepsis include:

- (a) In the mouth, dental caries and necrosis, gingivitis and stomatitis of every degree of intensity, periostitis, suppuration around decayed teeth, *pyorrhæa alveolaris*, deposition of tartar.

Allied to these are:

- (b) In the jaws, alveolar abscesses, osteitis, osteomyelitis, necrosis, maxillary abscess and,
- (c) In parts adjacent to the mouth, tonsillitis, pharyngitis, otitis and similar conditions.

He continues:

The sepsis connected with diseased teeth is of a particularly virulent character, much more so than the pus derived from soft tissues. It is really connected with disease of bone; and a somewhat extensive pathological experience of its effects, both professional and in my *post mortem* work, has satisfied me that no pus organisms are so virulent as those grown in connexion with necrosing bone . . . Infective disease of the mouth, as elsewhere, is not a mere question of the presence of an organism, however pathogenic, but a question of dose and resistance . . . The more widespread effects of such a condition are of three kinds:

- (1) Gastric and intestinal effects.
- (2) Remote infections (e.g., osteo-myelitis, ulcerative endocarditis, empyema, suppurative meningitis, suppurative nephritis, etc.).
- (3) Toxic effects.

Of these the commonest manifestations are the dirty, ashy-grey look and general languor, irritability, intense depression, fever of obscure character, septic rashes, purpuric hæmorrhages and bleeding from the gums, occasionally profound septicæmia, toxic neuritis, even pernicious anæmia.

I would draw your attention to the period during which each of these observers wrote; Dr. Rush before bacteria were discovered; Dr. Hunter before it had been made possible for radiography to assist in demonstrating the nature and extent of foci of dento-alveolar sepsis.

Regarding dental caries, we know that this condition is present at some time or other, and to some extent, in practically every mouth. Skiagrams are useful in this condition only seldom, as the dental surgeon can usually determine not only the presence or absence of it, but its extent also. Its effects on the system are those due to inefficient mastication of the food, to the effect on the food itself, such as the conversion of fresh healthy meat, during mastication with carious teeth, into food of about the value of meat that has become putrid from over-keeping, and the effects due to the ingestion of the caries organisms themselves.

It is my object in this paper to emphasize the importance of two chronic forms of oral sepsis.

- (1) Chronic general periodontitis (so-called *pyorrhæa alveolaris*).
- (2) Chronic dento-alveolar (so called) abscess; be-

¹ Read at a Meeting of the New South Wales Branch of the British Medical Association on May 27, 1921.

cause they are so very frequently unrecognizable without the aid of skiagrams, the onset of each is so insidious, the progress of each (when once established) is so constant and the effects of each are, to my mind, so far-reaching; and each of these conditions can be prevented.

(1) *Pyorrhœa Alveolaris.*

About this condition I quote largely from Colyer.¹

Pyorrhœa alveolaris is a most insidious affection; it is known also as chronic general periodontitis, alveolar osteitis, interstitial gingivitis. Commencing at the point of contact of the tooth with the gum, it spreads to and gradually involves the whole of the tooth-attachments. A few skiagrams will illustrate both the normal appearance of a healthy jaw, with the relation of the bone of the alveolar process to the teeth and the appearance of a jaw in which *pyorrhœa* is present.

In the healthy jaw the alveolar process and the teeth-sockets are everywhere lined with a fairly dense layer of bone. In the premolar and molar region the margin of the bone is close below the necks of the teeth and forms the base of a definite triangular space between the teeth. In the incisor region the bone is continued upwards in the mandible and downwards in the maxilla, so that the space between the incisors is considerably less than between the premolars and molars. Between the incisors the bone has the appearance of a sharp spine, but it passes in a fairly straight line between the back teeth.

When *pyorrhœa* originates around the back teeth the first bony lesion is usually a slight destruction of tissue in the centre of the interproximal spaces. As the destruction of the bone proceeds, the outer and inner plates of the alveolar process become involved, but the loss of tissue is usually greater between the teeth than on the buccal and palatal aspects. In the incisor region the destruction of bone is usually greater on the labial and palatal aspects than between the teeth. As the disease progresses, there is gradually more and more bone destruction, until, in the final stages the teeth fall out.

Pyorrhœa is considered to originate in the gingival margin. Trauma from hard particles of food during mastication or from the injudicious use of tooth-picks and so on, or some infective stomatitis may set up an inflammation of the gum. As a result of either swelling of the gum or the separation of the gum from the tooth the depth of the crater which normally exists around the tooth, is increased, food-remains are retained, micro-organisms gain a footing and a septic inflammation about the neck of the tooth is established.

This spreads to the membrane lining the tooth socket (periodontal membrane) and then to the adjacent bone; a condition of rarefying osteitis is set up and the bone-destruction is progressive.

Clinically in a mouth free from *pyorrhœa* the gums fit closely around the necks of the teeth and the spaces between the teeth are filled with tags of gum.

In the earliest stages of *pyorrhœa* these tags of gum become slightly congested and, if a probe be passed into the inter-proximal spaces, it will be found

that the gum has been partially destroyed. The congestion gradually extends to the whole of the margins of the gums which then usually bleed readily. Next, the tags of gum between the teeth gradually disappear. At this stage an examination of the teeth will usually disclose the presence of food and other debris in the approximal spaces and small nodules of calculus on the teeth. The inflammatory process then involves the bone which, together with the periodontal membrane, is slowly destroyed. The gums recede, but the recession does not ordinarily keep pace with the destruction of the alveolar process and the result is that around the teeth deep pockets are formed in which pus and other morbid material accumulate and aggravate the condition. The mucous membrane is now deeply congested, the free margins of the gums are swollen and usually bleed at the slightest touch. The roots of the teeth are more or less exposed and often covered with a layer of hard greenish-brown calculus. The teeth become freely movable and may become so loose that they can be easily removed. If the disease is left untreated, the teeth may be lost one by one and with the loss of the teeth the inflammatory process completely cleared up.

The disease may often be well advanced without the patient having become conscious that anything is wrong, especially where care is taken by the patient to keep the mouth clean.

Clinical appearances alone are not altogether satisfactory guides as to the extent of the disease and it is only by the aid of skiagrams that the amount of bone-destruction can be estimated with any degree of accuracy. . . . There is one point upon which particular stress must be laid here and that is that the absence of objective symptoms is no proof that damage—and possibly irreparable damage—is not in progress.

The treatment of *pyorrhœa*, although usually left to the dentist, may with advantage be mentioned here. In connexion with his article on treatment Colyer says:

The formation around the teeth of "pockets," which inevitably become stagnation areas, is the outstanding feature of the disease. Until these "pockets" have been eradicated it does not seem reasonable to claim that a cure has been effected; and as it is almost impracticable to eradicate them actual cures of the disease are rare, though well-directed treatment may keep the disease in check.

Local treatment consists of:

- (a) Freeing the teeth from salivary calculi and other debris (scaling).
- (b) Reducing the depth of the pocket (astringents, removal of redundant gum by, *e.g.*, the cautery).
- (c) Cleansing the pocket (by the free use of "floss silk," squeezing the gums, irrigation of the pockets).
- (d) Massage of the gums (with the fingers and the tooth-brush).

General treatment:

- (a) Removal of systemic intoxications and tonic and hygienic treatment directed towards the improvement of the general health.
- (b) Vaccine-therapy } (About which opinions differ in connexion with this complaint).
- (c) Ionization }

If treatment does not soon bring about a noticeable improvement and where a causal relationship to other diseases has been established, I am driven to the conclusion that the removal of the affected teeth at the earliest opportunity is the right course to adopt and that any other line of treatment will prove to be unsatisfactory. . . . The dental sepsis should be completely removed.

(2) Chronic Dento-Alveolar Abscess.

Chronic dento-alveolar abscess is, perhaps, even more insidious and more frequently undetected and

¹ J. F. Colyer: "Dental Surgery and Pathology," 1919.

I think is responsible for even more systemic trouble than *pyorrhæa alveolaris*.

These skiagrams of this condition which I show were, in almost every case, asked for because neither the patient nor the dentist "could detect anything wrong with the teeth," but the medical man in charge of each patient wanted to see if any oral sepsis was present to account for the malaise, anæmia, "muscular rheumatism," rheumatoid arthritis and so on, which the respective patients were suffering from.

In very few of the cases was there a history of pain or tenderness connected with the affected teeth; in more than one case the dentist to whom the patient was sent, even when the skiagram was exhibited, was very reluctant either to drill and drain or to extract; but when the tooth was drained or extracted, the dentist was quite satisfied as to the value of the skiagram and the necessity for the treatment adopted.

I am not now referring at all to acute dento-alveolar abscess, but only to the chronic form. I claim that, when systemic disease traceable to septic absorption is present and when the source of the sepsis cannot be definitely determined, skiagrams of the teeth should be obtained; chronic dento-alveolar abscess can be demonstrated in the majority of cases only by this means.

I am showing copies of films as negatives, for it is as negatives that the skiagrams are first made; from these negatives the radiologist makes his interpretation and it is in the form of a negative that each skiagram is sent, with its interpretation, to the doctor or dentist from whom the patient came.

Dr. Robert H. Ivy states:

Since the general recognition of the important relationship of infection of the investing tissues of the teeth to various pathological conditions of the body, an examination for the detection of the cause or portal of entry of many generalized infections may be justly regarded as incomplete without a thorough investigation of the teeth and surrounding parts. Since serious periapical dental infection may be present in the entire absence of subjective or objective symptoms or history of trouble, every examination of this type should include a radiographic study of all crown and pulpless teeth, and parts of the alveolar process from which teeth are apparently missing.

Even in the absence of symptoms, a periapical rarefied area as shown in the skiagram does mean usually that disease of some kind is present, unless the picture has been made shortly after operation before the area has had time to become obliterated. It has been stated . . . that these areas of rarefaction . . . are non-infective in the absence of pain and local symptoms and may simply represent the results of previous existing disease that has been cured, in other words, that they contain harmless scar tissue. While conceding this possibility in a small number of cases, it is believed that the persistence of such a rarefied area for any length of time without signs of decreasing in size is sufficient evidence that a disease process is going on, otherwise the area would gradually become smaller and be replaced by new bone. (Some dentists disbelieve that regeneration of bone ever takes place after infection-rarefaction has occurred, at any rate in periapical regions.)

There is abundant post-operative X-ray evidence that these areas of rarefaction disappear and are replaced by new bone unless infection remains.

We sometimes hear the following statement made by the unduly conservative sceptic after he has extracted, or has had extracted teeth shown by the skiagram to be responsible for periapical bone destruction. "I examined the teeth carefully after they were out, and there was nothing wrong with them." In other words, he attempts to convey the impression that owing to mistaken X-ray diagnosis the teeth were unnecessarily sacrificed, basing his opinion on a casual superficial inspection of the teeth alone, when the real seat

of the disease was located, not in the tooth itself, but in the surrounding alveolar process. A post-operative opinion, to be of any value, should be based on what is found by proper curettage of the rarefied bone about the apices of the extracted teeth, including perhaps bacteriological and histological study of the tissue removed. Because there is no visible absorption or exostosis of the root, no fluid pus, or so-called "abscess sac" adherent to the root when it is extracted, this does not necessarily mean that no disease is present in the surrounding bone.

From a clinical and a pathological standpoint there are in general two types of lesions about the teeth in which examination by X-rays is an aid to diagnosis and prognosis. These are:

Lesions involving the periapical region of the tooth dependent upon infection following the death of the pulp.

Lesions involving the investing tissues of the teeth—the periodontal membrane and alveolar process—not dependent upon the death of the dental pulp, but in which the infection starts at the gingival margin, so-called *pyorrhæa alveolaris* or, more correctly, chronic suppurative osteo-pericementitis (or chronic general periodontitis).

Occasionally a third type is seen, the so-called "periapical abscess," in which an inflammatory process is set up in the pericementum of a tooth, independently of disease of the pulp, the latter retaining its vitality, or being only secondarily involved. In these lesions the infecting organisms usually gain entrance from the gum margin, or from neighbouring diseased teeth, but may be carried from other parts of the body through the blood stream.

I may be accused of lack of originality in quoting so largely from writings on my subject; but the authors of these writings use such apparently reliable illustrations and hold such prominent positions in their respective countries (Britain and America) that I feel that their words are likely to carry more conviction than my own unsupported opinions.

I personally have been in close touch with patients who were suffering from complaints enumerated below; I have examined their teeth, accessory sinuses and so on with X-rays, and I have reported appearances very suggestive of septic foci. I have been kept informed of the measures adopted for the removal of these foci and I have had reliable information of the improvement following such removal.

Marked improvement or cure has resulted in many such cases where the conditions included iritis, rheumatic affections in different forms, headaches, anæmia, albuminuria, irregular heart action, sleeplessness, loss of weight, night-sweats, disturbances of the digestive tract even to sharp hæmatemesis and those numerous conditions where the patient is languid, has a bad colour, foul breath, and is below par generally. May I here remark that the best results have, as far as I can tell, been obtained in those cases where the physician or surgeon, the radiologist and the dental surgeon have met in consultation and the diagnosis and treatment have been determined in this way. I enter a plea for the more frequent consultations of this sort; they will certainly do no harm to physician, surgeon, dentist or patient.

RADIOGRAPHY AND DENTAL AFFECTIONS.¹

By J. G. Edwards, M.B., M.S.,
and

W. A. Edwards, M.B., B.S.,

Honorary Radiographers to the Sydney and St. Vincent's Hospitals.

The radiographic method of examining dead and devitalized teeth has become general practice only

¹ Read at a Meeting of the New South Wales Branch of the British Medical Association on May 27, 1921.

during the last few years. For many years we have been making examinations of such conditions as fracture, new growth, impacted and unerupted teeth, but such examinations have been made at the request of the general surgeon and not the dental surgeon. At the present time no dentist can be considered up to date in his work unless he avails himself of the help of the radiologist.

We do not intend to devote much time to the description of apparatus to-night; any moderate sized outfit can be utilized as long as exposures do not exceed about fifteen seconds; if exposure be too prolonged, blurring will be caused owing to the inability of the patient to keep perfectly still.

We use Buck's "X-ograph" films exclusively and find a diaphragm designed by ourselves of great use in preventing distortion.

The film is placed in the mouth and held against the lingual surface of the tooth, the tooth and alveolus coming between the film and the tube; the incident rays should strike the film almost at right angles and with a little practice it is easy to prevent distortion. If the tube is tilted too much foreshortening of the teeth appears in the picture and if the skiagram is taken with the tube too perpendicular to the skin surface, elongation of the teeth in the resultant image is produced.

It is a good practice not to attempt to get too many teeth on one film. We aim to get two teeth only.

For the lower teeth we use a Leach's film holder, as it allows the film to be placed low in the space between the teeth and the tongue.

Radiography is not dangerous to the patient if care be taken not to make repeated exposures over the same skin area, while if a millimetre of aluminium is placed between the tube and the patient, several exposures may be made with safety. Operators should on no account hold the films in place during an exposure; the patient should be made to do this. I have seen many cases of radio-dermatitis from neglect in this respect.

Shocks from high-tension currents are not dangerous, but it is as well to carry all wires high up and out of reach of any possible contact with the patient.

Great attention has recently been paid to the possibility of many systemic diseases being due to absorption from septic foci; the commonest sources of such absorption are the genito-urinary tract, colon, sinuses of the head and teeth. Clinical examination will generally reveal trouble in all these sites with the exception of the teeth. The teeth may be extensively involved, yet the most careful dental examination will not reveal any trouble and such trouble would be overlooked unless the teeth were subjected to radiographic examination.

Periapical abscess and pyorrhoea are the two great dental troubles and of the two the periapical abscess is the more dangerous, as the only possibility of drainage is into the general circulation, while in pyorrhoea there is always a certain amount of drainage from the gum margins. The failure of chronic periapical abscesses to cause any symptoms is very common and patients will not believe that there is any trouble about their teeth, while many dentists refuse to believe that teeth are diseased unless they can find

corroborative clinical evidence, such as pain or tenderness. They often persist in this belief in the presence of undoubted radiographic evidence that such trouble exists.

If a dentist persists in ignoring positive radiographic evidence, how is he to diagnose the presence of periapical disease?

Crowned, pivoted and pulpless teeth are potential sources of trouble and in ill health they should be subjected to early and thorough radiographic examination. It is also well to examine all areas from which teeth have been extracted, as in many cases buried septic roots are found. No tooth should be crowned or dealt with in any way before a radiographic examination has been made; if this were done a great many teeth would never be crowned or pivoted.

Sir William Hunter wrote as follows over ten years ago:

Gold fillings, gold caps, gold bridges, gold crowns and fixed dentures, built in, on or around diseased teeth, form a veritable mausoleum of gold over a mass of sepsis, to which there is no parallel in the whole realm of medicine or surgery.

According to Duke, fully 50% of devitalized teeth show periapical sepsis and a greater percentage of crowns, pivots, fillings and bridges project sufficiently to irritate the gums and leave pockets for sepsis.

Thoma reports 88% of alveolar abscesses in a large series of patients suffering from various chronic maladies.

Irons reports 77% of alveolar abscesses in persons suffering from chronic arthritic conditions in a large hospital practice, while in a thousand consecutive cases at one medical clinic, Duke found septic foci in 66%. These figures show how common such infections are.

Now, in regard to the interpretation of the radiograms.

Physicians and surgeons have gradually come to recognize that interpretation is an extremely difficult accomplishment and agree that only skilled radiologists can give any opinion of value on a skiagram. Some dentists, however, still consider themselves greater experts at interpretation than the radiologist. The radiologists hope one day to convert them.

A dentist in active practice cannot give sufficient time to the subject to become efficient at interpretation and it is not possible for a man in a single practice to see a sufficient variety of cases to allow of him giving an authoritative opinion, in any but the simplest case.

The best method of procedure is for the patient to be examined and reported upon by an expert radiologist and one engaged only in the practice of radiography, whether he be a medical or dental graduate. When general systemic diseases are in question, the medical man can give a far more valuable opinion than the dentist, owing to his wider training in general pathological conditions and to the fact that he is not walled in by a narrow specialty as is the dental surgeon. Beginners in radiography are apt to be over-enthusiastic in their interpretations, but as they grow older, they become more conservative in their opinions and recognize that affected teeth may occasionally be treated by methods other than extraction.

Erroneous interpretation means wrong treatment and consequent bad results, which tend to discredit radiography and account for much of the lack of appreciation shown for it.

There are men in practice who are frankly hostile to radiography and try on all occasions to belittle it. They extract the affected tooth and triumphantly display it to the patient, stating that it is normal! Such men display total ignorance of dental pathology, for periapical sepsis is an affection of the periapical bone and not of the tooth root.

Good films are necessary for sound interpretation and the original films only should be viewed; prints are valueless.

A knowledge of the normal appearance of the teeth at all ages is necessary and the interpreter should be conversant with all abnormalities consistent with good health. In skiagrams the normal alveolus shows as a fine lacework with a more condensed fine white line about the tooth socket, while between the socket and the tooth there is a very fine dark line due to the presence of the periodontal membrane. Between the upper incisors normally a more transparent area of bone, known as the anterior palatine fossa, is frequently found, while further back the antrum of Highmore appears as a dark area above and about the roots of the premolar and molar teeth. The antrum varies greatly in shape and extent and the tooth roots often appear to project into the antrum, being covered only by a very thin layer of bone. This antral shadow is very frequently diagnosed as a large area of periapical absorption or as a dental or dentigerous cyst.

The coronoid process of the mandible is frequently seen in skiagrams of the upper molar region and it is

often interpreted as a tooth or retained root process. The mental foramen and the dental canal in the lower jaw are also frequently misinterpreted as septic foci.

The lesions met with in the examination of the jaws may be either acute or chronic. The acute processes are of little interest to us, though of absorbing interest to the patient. They usually are confined to one tooth and rapidly progress to abscess, drainage of which leads to cure. The best method of drainage is probably through the socket after extraction of the tooth, but for some unknown reason a dental surgeon can rarely be persuaded to extract a tooth in the presence of an acute process, although it is a surgically sound procedure.

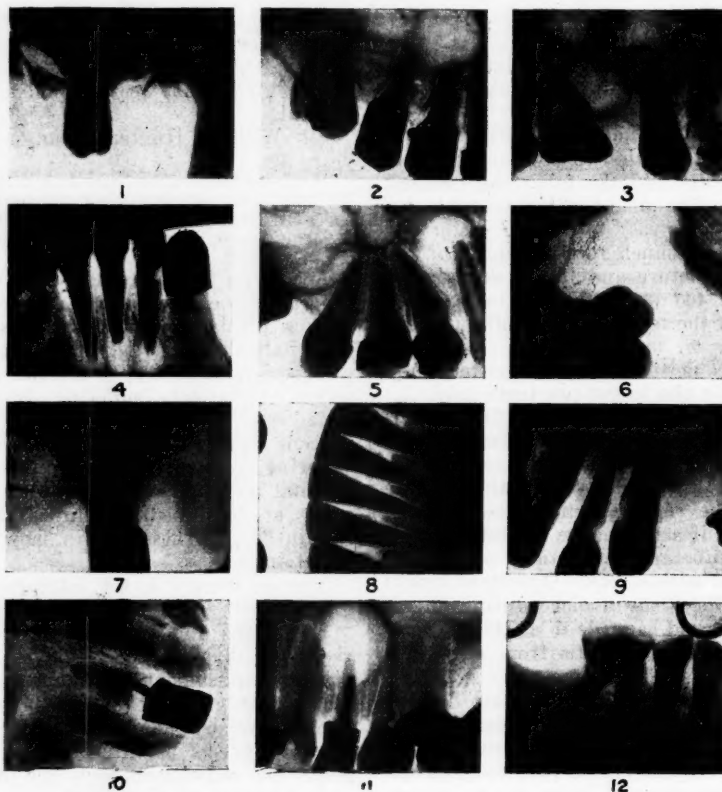
Chronic infections are divisible into two classes:

(i.) Periapical infections, due to the introduction of sepsis through the root canal;

(ii.) Pyorrhœal infections, due to the entrance of micro-organisms form the gum margin.

Pyorrhœa alveolaris (chronic osteopericementitis) is due to many causes acting together and producing irritation at the gum margins and allowing of the entrance of

micro-organisms. Malocclusion, chronic irritation and decay, defective dental work and pocketing of food particles are the commonest exciting causes. When certain organisms commence their growth in the inflamed gum we have a gingivitis, which, if untreated, proceeds to extend deeply and involves the alveolus and periodontal membrane. Streptococci, pneumococci, amœbæ, spirochaetes and various putrefactive organisms are found in these pyorrhœal affections. The extension of the disease leads to destruction of the alveolus and loosening



- 1.—Septic changes about retained stumps.
- 2.—Proximity of bicuspid roots to antrum.
- 3.—Low position of antral floor between bicuspid and molar teeth.
- 4.—Periapical septic foci.
- 5.—Large periapical septic focus.
- 6.—Large dental cyst.
- 7.—Capped tooth with shadow of coronoid process of mandible (often mistaken for a molar tooth).
- 8.—Pyorrhœal involvement of alveolus.
- 9.—Pyorrhœal involvement of alveolus with dental caries.
- 10.—Ill-fitting pivot tooth.
- 11.—Dental cyst.
- 12.—Septic process between the roots of a lower molar.

of the teeth; extraction or loss of the tooth provides drainage and cure.¹

Infections through the root canal are secondary to the death of the pulp, whether as the result of ordinary decay or as the result of intentional dental interference in the process of devitalization. It is absolutely impossible to carry out root canal fillings without occasionally introducing sepsis; the organism which is introduced, is in the majority of instances the streptococcus.

The introduction of strong antiseptics, such as arsenic and formaldehyde, causes wide destruction of the periapical tissues and any implanted organisms rapidly grow at a good incubation temperature. This periapical inflammatory change causes death of the bone and the dead area shows in the skiagram as a small rarefied area. Such an area is evidence of disease and in invalids especially it should receive early treatment and drainage.

Streptococci of high virulence rapidly produce abscess with early discharge of pus, but when of low virulence, the process is slow and a space forms about the apex filled with granulation tissue (granuloma); streptococci can be obtained in pure culture from this area. This granuloma may break down and form a thin fluid pus and the condition is then generally referred to as a chronic abscess. This process may or may not be accompanied by absorption and roughening of the tooth root or by a gradual deposit of new cement about the root (hypercementosis or exostosis).

Periapical areas of absorption have no limiting membrane as is usual in abscesses elsewhere, but communicate directly with the blood stream through the Haversian system and the products are easily absorbed.

In the more chronic cases there is a proliferation of the squamous cells of the peridental membrane about the apex and in the periapical inflammatory tissues. These break down (a process of fatty degeneration) in the centre and a space is left filled with a clear fluid which gradually extends, causing pressure on and atrophy of the peripheral cells until finally a dense fibrous capsule forms (the dental cyst). The contents of these cysts are sterile and are not a source of septic infection; they only cause trouble when they involve several teeth, causing neuralgia or loosening of the teeth.

Organisms harboured in these chronic foci may remain localized, but should any part of the body offer a lowered resistance, they find abundant opportunity to cause disturbances at a distance from the original focus.

In regard to treatment, I have little to say. Conservative treatment should never be attempted in invalids; in strong and vigorous individuals it may be attempted in selected cases, but should be frequently checked by radiographic examination.

Root amputations have in my experience rarely succeeded and should only be attempted in the case of the anterior upper teeth.

Teeth should be invariably extracted when a septic focus involves more than one tooth or is close to the antrum.

¹ Numerous skiagrams were projected on the screen to illustrate the various stages in this condition in pyorrhoeal infection.

In pyorrhoeal cases there is no hope of saving a tooth when more than half the supporting alveolus has been absorbed or when the process has extended between the roots of one of the molars.

Lower teeth need extraction oftener than upper teeth, owing to the difficulty of providing drainage through the root canal.

In conclusion, although these troubles occur almost always in crowned, pivoted and root-filled teeth, it does not follow that these methods of treatment should be abandoned. The causes of failure are twofold, firstly, faulty technique and, secondly, faulty judgement.

Faulty technique is rarely the cause, but faulty judgement is usually the cause. The faulty judgement consists in attempting reconstructive dentistry on diseased teeth. If every tooth were radiographed before crowning or pivoting, the number of cases of periapical sepsis would be enormously decreased.

We learn that Dr. R. H. J. Fetherston has decided to contest the Prahran seat in the Victorian Legislative Assembly. His political and general qualifications will, we feel sure, be recognized by a large number of the citizens in the constituency. We would wish to point out that his long and intimate association with the work of the Federal Committee and of the Victorian Branch of the British Medical Association and his keen sense of the requirements of the medical profession will gain for him the undivided support of his colleagues. The Victorian Branch of the British Medical Association is to be congratulated on the public spirit of a relatively large number of its members who are taking an active part in parliamentary and municipal affairs.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A meeting of the Senate of the University of Sydney was held on August 8, 1921.

On the recommendation of the Buildings and Grounds Committee it was decided that the Medical School on the north side be completed at a cost of about £10,000, in accordance with the plans submitted by Professor Wilkinson.

The following recommendations of the Faculty of Medicine were adopted:

(i.) The institution of two new degrees in surgery, viz., Bachelor of Surgery (B.S.) and Master of Surgery (M.S.) and the abolition of the existing degree of Master of Surgery (Ch.M.).

(ii.) That students who have passed through the ordinary medical curriculum, be admitted to the degree of Bachelor of Medicine (M.B.) and the degree of Bachelor of Surgery (B.S.), if they so elect.

(iii.) That the degree of Master of Surgery (M.S.) be a higher degree in surgery, corresponding to the M.D. degree.

(iv.) That the length of the medical curriculum be increased from five years to five years and two terms.

(v.) That the short course of lectures on special subjects, including psychiatry, diseases of children, diseases of the skin, diseases of the ear, nose and throat and diseases of the eye, be compulsory to all students.

(vi.) That the fees for the degrees of Doctor of Medicine (M.D.) and Master of Surgery (M.S.) be twenty pounds respectively.

The necessary amendments of the by-laws were submitted and approved:

The following additional examiners were appointed:

Third Year Medicine: Dr. John Macpherson (pharmacology).

Fourth Year Medicine: Dr. J. E. V. Barling (pathology). Dr. J. C. Windeyer, Lecturer in Obstetrics, was granted

leave of absence for the current year and Dr. Reginald Davies was appointed in his place.

Dr. R. J. Silverton was appointed part-time demonstrator in anatomy in the place of Dr. A. L. Buchanan, who has resigned.

Dr. H. J. Marks was appointed Lecturer in Diseases of the Ear, Nose and Throat for a further period.

A letter was received from Mr. D. Forbes Mackay, of Queensland, enclosing a donation of £100 to the University Sports Union.

A letter was received from the Department of Defence, intimating that the Department was willing to erect a building for the University Scouts as soon as Parliament had voted the necessary sum.

UNIVERSITY OF MELBOURNE.

Farewell to Retiring Lecturers on Medicine and Surgery.

A pleasant ceremony took place in the New Club House at the University of Melbourne on August 4, 1921, when the Faculty of Medicine invited the University Council and representatives of the Medical Students' Society to meet Sir Henry Maudsley and Mr. F. D. Bird, the retiring lecturers on medicine and surgery.

The Chancellor, Sir John MacFarland, who occupied the chair, expressed the gratitude of the Council and the whole University for the services which the retiring lecturers had rendered. He emphasized the influence of the character of teachers and cited their guests as illustrious examples of this truth. The ancient saying that it was more blessed to give than to receive was very apposite on this occasion. Sir Henry Maudsley and Mr. Bird had given of their best and far beyond their receiveings. He spoke also of the assistance that professors and lecturers in the Medical School had rendered to the University outside of matters concerning their own Faculty.

The Dean of the Faculty, Professor Sir Harry Allen, said that this gathering was to express gratitude to the retiring lecturers and also to mark the placing in commission of the offices of lecturer on medicine and on surgery, each under a chairman with a team of lecturers selected for peculiar knowledge of some special department. The change had not arisen out of any sense of defect in the past. On the contrary, they assembled to express to the retiring lecturers their deep gratitude, their high appreciation. The alteration in method was simply an adjustment to the increasing complexity of medicine and surgery. Speaking of surgery, he remarked that the first lecturer, Dr. Edward Barker, had held office for seventeen years and had brought with him the traditions of Lister and of University College Hospital. The second, Mr. T. M. Girdlestone, had lectured for fifteen years and was a pupil of Lawrence and Stanley at St. Bartholomew's. Their guest, Mr. F. Dougan Bird, had occupied the chair for twenty-five years, having grown up in the Melbourne Medical School, where he graduated in 1882, his five years' curriculum corresponding with Lister's first five years at King's College, London. The Dean said he had already at that time formed a strong friendship with Mr. Bird, whose buoyant manliness and uprightness were most attractive. Mr. Bird was captain and stroke of the University Boat Club. He was a demonstrator of anatomy from 1884 to 1887 and in 1891 he succeeded Mr. E. M. James as indoor surgeon to the Melbourne Hospital. In 1895 he became lecturer on surgery, his father, Dr. S. Dougan Bird, having retired from the office of lecturer on medicine eight years before. Mr. Bird had served as president on local societies and of the Surgical Section of the Australasian Medical Congress and had made notable contributions to the science of surgery. At the last International Congress in London, he was Vice-President of the Section of Surgery and was elected to the Fellowship of the Royal College of Surgeons of England, *honoris causa*. When the war came, he went with his son to Egypt at the time of the first Expeditionary Force and joined the Royal Army Medical Corps, rising to be Colonel and Consulting Surgeon to the Forces in Egypt, doing excellent service on the hospital ships at Gallipoli and afterwards being Consulting Surgeon to the Forces on the Macedonian front. For this work he received the C.B. He was a brilliant lecturer, an excellent clinical teacher, a careful examiner, always most popular among the

students. He had left a deep imprint of his character and work upon the Melbourne Medical School.

Mr. F. D. Bird, in reply, spoke of the great development of surgery during his term of office and of the importance of conservative practice. Surgery was truly a fine art. He had been fortunate in his colleagues and owed much to Sir Thomas Fitzgerald, to his father and to Sir Harry Allen. He spoke of his kindly relations with other lecturers and with brother surgeons and made special reference to the young giants in surgery now rising up, in whom he felt that some tincture of himself must continue. The ceremony of that day would form another milestone in his life, to be gratefully remembered.

The President of the Professorial Board, Professor W. A. Osborne, spoke of the great services rendered to the Medical School by Sir Henry Maudsley. Other members of the Faculty had longer intimacy with Dr. Maudsley and were more fully in touch with his work. The chair of medicine had been filled for the first seventeen years by Dr. James Robertson, of Aberdeen University; and then by Dr. S. Dougan Bird, of King's College, London, a gentleman of fine personality, with whose writings on Australian climates and other subjects he had gladly made acquaintance; then by Dr. James Jamieson, with the Glasgow tradition, a man remembered with warm affection, a notable lover and collector of rare books. Dr. Henry Maudsley, who graduated from University College, London, followed in 1908 and now with him the old system of single lecturer was passing. One man could no longer bear the whole burden, but the advantage of team work would be bought at a price, for the personal influence of the teacher might become less. Colonel Maudsley's work in the war was well known, as Senior Physician of No. 1 Australian General Hospital at Cairo, as Consulting Physician to the 3rd London General Hospital and as Consulting Physician to the Australian Forces at headquarters in London. His services were specially brought before the Secretary of State for War and general pleasure was felt when these services were recognized by the Order of Knight Commander of Saint Michael and Saint George. Sir Henry Maudsley was a man of sensitive nature and hence it was necessary to speak of him with great restraint. Always magnificently up to date, honourable in the discharge of all duty, with a wonderful sense of balance in his studies and in his teaching, an artist in the presentation of his results, Sir Henry Maudsley remained a searching critic, while never departing from extreme kindness. But personality could never be dissected out. Something remained defying analysis. In the minds of his colleagues and of his students there would be an abiding memory of a distinctive, kindly, lovable personality.

Sir Henry Maudsley, in reply, said he found it difficult to speak. The Chancellor had reminded them that it was more blessed to give than to receive. From being a lecturer, with young minds around him and from watching them, he had received much more than he gave. He had always been fearful lest his lectures might fail, but things had turned out better than his fears. He was proud of having been a lecturer in this great University, whose graduates he had seen in many capacities in various parts of the world, in pure science, in medicine, in surgery, as regimental officers and in other positions; he had never met one that he was ashamed of. He thought specially of the late Dr. G. C. Mathison, who, but for his untimely death in the war, would have been one of the leading physiological researchers in the world. The great clinical schools of St. Bartholomew's and St. Thomas's Hospitals had chosen Melbourne graduates for offices of large responsibility. The Faculty of Medicine was a blend of younger and older elements, of the purely scientific and of the practical. He had found it a very good body, whose deliberations brought excellent results. There was the recurring need for modification of the curriculum. The old must be altered or scrapped. The new must be developed. Different departments could not be separated by watertight partitions. There must be more and more co-ordination. The physiologist and the anatomist must see what goes on in the wards. Professor Osborne had said many nice things, some of which he did not feel he deserved; but he was most happy in receiving this expression of the good will of his colleagues.

Dr. L. S. Latham then proposed a vote of thanks to the Chancellor, which was carried with acclamation.

The Medical Journal of Australia.

SATURDAY, AUGUST 20, 1921.

The Defence Medical Services.

Notwithstanding the fact that Australia ranks among the least conservative countries of the world, it is extremely difficult to gain ready support for radical changes in the social or political machine. Few men are courageous enough to advocate a sudden upheaval, a dramatic revolution and reversal of well-established organizations. The fear of a leap into the untried and unknown restrains the man of ordinary vision from favouring the wholesale destruction of an old institution, no matter how strong the evidence may be of its defects and of its unsuitability for the altered conditions of affairs. It is held to be wiser and more politic to permit the inevitable changes to insinuate themselves gradually, little by little, so that the responsibility in the case of failure may be distributed among many. The strong man, with a wide vision, with courage to speak and act, the man who is impatient of delays in the reforms designed to improve the position of the people, dares to suggest a clean slate and a fresh start, when the old instrument is worn out and no longer performs its functions satisfactorily.

The Federal Committee of the British Medical Association in Australia listened with courteous attention to some proposals put forward by Dr. J. Adam Dick on the re-organization of the Medical Services for the Defence Forces of the Commonwealth. The majority of the members had come to the meeting, prepared to wipe aside the proposal to establish one medical service to serve the three arms of the Forces. It was a radical change of a revolutionary character and caution-dictated to the Branches which the members represented, that this upheaval would be too risky to advocate. The idea had been ventilated in these columns some months ago, but the soundness of the arguments had fallen on deaf ears. Dr. Dick pleaded his case anew; he marshalled his facts concerning the waste of three expensive organizations to minister to the needs of a small Naval Medical

Service, of a smaller Australian Army Medical Corps and of a still smaller medical department of the Air Force. He proved that for Australian conditions, at all events, the triple establishment was extravagant and that in the interests of economy the medical services should be unified and placed under one responsible authority. His listeners saw the problem in a new light and, even though they had no mandate to approve the proposals, they recognized that it would be unwise and short-sighted to brush them aside. Dr. Dick then turned his attention and that of his audience to a still more important aspect of the scheme. Experience had taught that the training of Naval medical officers, of Army medical officers and of medical officers for the Air Forces was essentially the same. In all discipline was required. In all the medical officer needed to be instructed in service administration and in the routine of service life. The professional equipment did not differ at all, neither was there more nor less to be learned to become efficient for medical work on active service on land, afloat or in the air. The Army medical officer in time of war was selected as transport medical officer or for duty on a hospital ship, while the Naval medical officer often found himself on duty in a special section of a military hospital. There was but a small difference between the sick bay of a ship in action and a casualty clearing station. If the training and preparation for active service were concentrated by the merging of the three services into one, there would necessarily result a signal gain in efficiency. The medical service was a thing apart; it was not a branch of the combatant forces, but a necessary annex to the forces which were to provide safety to the Commonwealth and to the Empire. The medical service was utilized to distinguish between the useful recruit and the useless burden to the Navy or the Army. By effective training the mistakes of the past might be avoided in the future, but the avoidance depended on improved organization. The medical service was entrusted with the maintenance of the health of the troops and of the ratings. There was a serious duty for the medical service in the Navy, in the Army and in the Air Forces to keep the fighting strength up to the maximum by the application of scientific methods of rapid restoration of health of all who fell ill or were injured. Dr. Dick

gained further support by his arguments in favour of increased efficiency resulting from the amalgamation of the three sister medical services into one strong school.

The Federal Committee has referred the question back to the Branches for further consideration. It is quite possible that in the Branches the proposals may meet with opposition from members who dislike radical changes. The timid may be disinclined to advocate a proposition that is sure to meet with resistance from the "red tabbed" members of the military Forces at headquarters. The politician may receive the proposal with coolness, because there is no political capital to be made out of it. Lastly, the proposal may encounter real difficulty in ministerial circles, for it is necessary for the new service to be placed under the authority of one minister. These difficulties can and must be overcome, if Australia is to have a ready and reliable Defence Medical Service. The future of the Army Medical Service rests at present in the hands of a man who is noted for his firmness of purpose, for his disinterestedness and for his ability as a commander of men. The gain to the Commonwealth if this same man were given the responsibility for the unified medical service would be immeasurable. The time is ripe for the change, before General Sir Neville Howse has completed his plans for the re-organization of the Army Medical Services. He would have no difficulty in adapting the arrangements he is now making to the extended organization. We have confidence in the Branches to authorize their representatives to attend the meeting of the Federal Committee next February and to support Dr. Dick in his excellent scheme.

A FILTER PASSER IN INFLUENZA.

During the later phase of the influenza pandemic claims were made by three groups of laboratory workers that a filter-passing organism was responsible for the disease. The evidence on which this work was based, was subjected to critical analysis and experimental control and the consensus of opinion was that neither Nicolle and Lebailly, nor Rose Bradford, Bashford and Wilson, nor Gibson, Bowman and Connor had established their case. At a later period some highly suggestive experiments were recorded by Lister and Taylor, who had endeavoured to infect human beings with the filtered and unfiltered washings from the naso-pharynx of persons suffering from unmistakable influenza and had failed to produce any-

thing approaching real influenza. A large amount of work has been carried out with the object of determining the exact part played in the aetiology of the disease by Pfeiffer's bacillus. Notwithstanding repeated attempts, no one has been able to prove beyond doubt that the bacterium called *Bacillus influenzae* is the causal organism of influenza. It thus appears that the nature of the infection has still to be demonstrated. The history of the researches bids us to exercise caution when new evidence is offered and when claims are made that any given organism stands in causal relationship with the disease. During the latter part of 1920 and the early part of this year, Dr. Peter K. Olitsky and Dr. Frederick L. Gates have published from the Laboratories of the Rockefeller Institute for Medical Research a series of articles dealing with the infectivity of the naso-pharyngeal secretions of persons suffering from influenza. These workers have found that the naso-pharyngeal secretion of persons during the first 36 hours of an uncomplicated attack of influenza, when injected into the trachea of rabbits and guinea-pigs, gave rise to changes in the blood and lungs similar to those noted in severe human influenza. They found that the secretion could be filtered without impairment of the power of infecting and, further, that the infecting agent could be cultivated. In their latest communication they give the details of the biological characters of the organism.¹ They are not prepared to assert that this organism is the aetiological agent of influenza in man until further experimental information is available. It is, however, quite obvious that the work has been directed toward the finding of the aetiological factor of the disease. The material used in the experiments was derived from patients in the early stages of the disease and in some instances during the late stage and also during convalescence. Some of it was preserved in 50% glycerol, which apparently did not destroy its infectivity. The cultures were made in sterile human ascitic fluid, containing pieces of normal rabbit kidney tissue. They were grown under anaerobic conditions at 37° C. for from eight to twelve days. The hydrogen ion concentration of the ascitic fluid was between 7.8 and 8. The final hydrogen ion concentration of the culture media, both before inoculation and after growth had taken place, was between 7.4 and 7.8. The naso-pharyngeal secretion filtered through Berkefeld V and N filters gave rise to the growth of a minute bacilloid body from 0.15 to 0.3 μ in length. The authors call this organism *Bacterium pneumosintes*. It possesses constant cultural characters and can be propagated through many generations without losing its pathogenicity. It was recovered from the lung tissue of the infected rabbits and guinea-pigs. They found that it grew well in symbiosis with Pfeiffer's bacillus, pneumococci, streptococci and staphylococci. When introduced into the trachea of laboratory animals the lungs became oedematous and emphysematous; hemorrhages of varying sizes from diffuse patches to minute petechiae were found. These hemorrhages started in the interalveolar tissue, which was infiltrated with mononuclear cells and a few poly-morpho-nuclear cells with large eosinophile granules. The alveoli

¹ *Journal of Experimental Medicine*, June 1, 1921.

were distended by œdematous fluid and torn by the emphysematous process. In the blood the changes were chiefly a leucopenia and a diminution of mononuclear cells. The bacterium was recovered in but few instances from the secretions of patients late in the disease.

If the evidence presented can be confirmed, it would seem that in the early stages of influenza in man there exists a minute bacilloid organism which can be cultivated by means of the Smith-Noguchi technique through an indefinite number of generations. The organism is a filter passer and when injected into the trachea of rabbits or guinea-pigs, it gives rise to changes in the lungs and in the blood similar to the changes noted in uncomplicated influenza in man. These findings are of great importance and should be controlled by other workers on a large scale. There should be no difficulty in ascertaining whether the *Bacterium pneumosintes* when introduced into the naso-pharynx of man, can produce signs and symptoms indistinguishable from influenza and whether the same organism can be recovered during the infection from the naso-pharyngeal secretions.

TO MEMBERS.

Since October, 1920, the cost of production of *The Medical Journal of Australia* has increased very greatly. The Directors of the Australasian Medical Publishing Company, Limited, have been faced with a difficult problem of preventing the undertaking from being run at a loss. It was determined in February, 1921, that the Branches of the British Medical Association in Australia should not be asked to pay more than heretofore for the journals supplied to the members. Arrangements are being made for the setting up of the type under the control of the Manager within a short time. Pending this change, it has been necessary to reduce the size of each issue, so that the temporary financial embarrassment might be minimized. In these circumstances, we have been compelled to hold back much valuable material which has been offered to us for publication. In some issues it has been impossible to find space for correspondence on topical matters, while, at times, the issues have not been large enough to contain the papers read at one meeting of a Branch of the British Medical Association and a summary of the discussion. We ask the members to recognize that during the next few weeks it will be impossible to alter this highly undesirable state of affairs and to exercise patience until the remedy can be applied.

Naval and Military.

APPOINTMENTS.

The following appointments, promotions, etc., have been notified in the *Commonwealth of Australia Gazette*, Nos. 59 and 61, of July 21 and 28, 1921:

Australian Military Forces.

Second Military District.

The Undermentioned Honorary Lieutenant-Colonel to be Lieutenant-Colonel—
Reginald Fitzherbert.

To be Major—

Captain Henry Stoker, V.D., A.A.M.C. Reserve, 1st January, 1921.

The Undermentioned Honorary Majors to be Majors—

Charles Christopher Corliss, M.C.,
Arthur John Mollison,
Reginald Macdougall Bowman,
Roy Coupland Winn, M.C.,
Keith Harvey Grieve, M.C.,
Robert Joseph Taylor,
Edmond Henry Burkitt,
Baron Brooke,
John James O'Keefe,
Kenneth Frith Vickery, Australian Army Medical Corps Reserve,
Cyril Charles Minty, M.C., 1st January, 1921.

The Undermentioned Honorary Captains to be Captains—

Charles Cosgrove, M.C., Australian Army Medical Corps Reserve,
William Dean Collier,
Herbert Odillo Maher,
John Leslie Harrison,
John Cooper Booth,
George Mervyn Hay,
Carl Oscar Hellstrom,
Harold Skarratt Thomas,
Charles Cecil Humphries,
Archie Sheridan Cockburn,
Malcolm Alexander McIntyre Sinclair,
William Dempsey Quilty, M.C.,
Guy Ardlaw Lawrance, M.C.,
Patrick Joseph Francis O'Shea, M.C.,
William Stuart Hawthorne,
Francis Brown Craig,
Anstruther John Corfe,
Cecil Stanley Molesworth,
John Thomson Anderson,
Norbert Henry Bridge,
Clyde Isaac Davis,
Alexander Paterson Murphy,
Arthur Duncan Forbes,
Charles James Taylor,
Henry Vicars Gillies,
Charles Saunders Renwick,
Robert Roger, 1st January, 1921.

Australian Army Medical Corps—

To be Captain—

Honorary Captain R. A. Fox, from the Reserve of Officers, 1st May, 1921.

The temporary rank of Major granted to Captain A. L. Kerr is terminated, 3rd June, 1921.

The provisional appointments of Lieutenants C. H. Jaede and G. H. Pfeiffer are cancelled under the provision of Section 16 of the *Defence Act*, 31st May, 1921.

Reserve of Officers—

Honorary Captain A. E. D. Clark is transferred to the Reserve of Officers, 5th Military District, and to be Captain, 1st June, 1921.

Third Military District.

To be Major—

Captain Alexander Clow Fraser, A.A.M.C. Reserve.

To be Captains—

Francis Julian Bowyer Miller,
Walter Henry Steel, 1st January, 1921.

The Undermentioned Honorary Captain to be Captain—
Frank William Fay, M.C., Australian Army Medical Corps Reserve, 22nd April, 1920.

Fifth Military District.

The Undermentioned Honorary Major to be Major—
James Bentley, M.C., 22nd April, 1920.

THE WAR MEMORIAL FUND IN VICTORIA.

The following have sent contributions to the War Memorial Fund of the Victorian Branch of the British Medical Association: Albert H. Hughes, Herman F. Lawrence, J. H. McWee, Leonard J. C. Mitchell, F. L. Lance, J. T. Tait.

Abstracts from Current Medical Literature.

PATHOLOGY.

(78) Effect of Induced Cellular Reaction on the Fate of Cancer Grafts.

In the *Journal of Experimental Medicine*, March, 1921, Murphy, Hussey, Nakahara and Sturm record the results of further studies on lymphoid activity. They sensitized mice by an injection of 0.2 c.c.m. of defibrinated rat's blood, thus inducing a cellular reaction as evidenced by the lymphoid infiltration in the region where the blood was injected. Ten days later these mice were inoculated with a mixture of rat's blood and a transplantable mouse cancer. They showed a high degree of immunity to the cancer growth, while mice sensitized in the same way and inoculated with cancer graft with no rat's blood, showed no immunity. Likewise, non-sensitized mice inoculated with a mixture of rat's blood and cancer cells, showed no immunity. The condition of local anaphylaxis apparently renders the tissues affected unsuitable for the growth of a cancer graft. Mice sensitized to rat's blood and then given a series of doses of X-rays between the time of this injection and the inoculation of the cancer-rat's blood mixture, showed a suppression of the factors affording protection or immunity, since the cancers grew as well in these animals as in the controls. The authors conclude that it is possible to overcome, to a certain extent, the immunity to cancer which results from a local anaphylactic reaction, in two ways; firstly, by desensitizing the animals so that the second injection of foreign protein does not call forth the local cellular reaction, and, secondly, by allowing X-rays to destroy lymphocytes taking part in the local reaction, before they have time materially to affect the cancer graft. In either case the effect follows the prevention of the local cellular infiltration from taking place or from becoming effective.

(79) Mononuclear Phagocytes of the Lung.

The nature, source and fate of the mononuclear cell normally seen as the phagocyte of foreign particulate materials in the lung, have been further investigated by H. H. Permar (*Journal of Medical Research*, July-September, 1920). Foreign particulate material in the form of suspensions of carmine powder in physiological salt solution, was injected into the tracheæ of rabbits. Isamine blue made up in 0.5% suspension in physiological salt solution, was injected intravenously to mark the large mononuclear wandering cells. It was found that the inert pigment introduced into the alveoli of the lung, was rapidly taken up by the large mononuclear phagocytes, which showed the morphological characters and faculty of amoeboid movement possessed by the wandering mononuclear

endothelial cell. The origin of these cells was found to be by proliferation from the endothelial cells lining the blood capillaries of the alveolar walls, whence the newly-formed cells migrate directly into the alveolar spaces by passing between the cells lining the alveolus, to take up their phagocytic function. From their field of activity in the air sacs, these phagocytes were found slowly returning to the interstitial tissues of the lung with their loads of carmine, wandering very gradually into the terminal lymphatics and so along these channels to their eventual goal, the peribronchial lymph node. Ingestion or phagocytosis of carmine particles by the alveolar epithelial cells was not found to occur.

(80) Experimental Inoculation of Human Throats with Avirulent Diphtheria Bacilli.

W. L. Moss, C. G. Guthrie and B. C. Marshall sprayed a suspension of avirulent diphtheria bacilli into the throats of five persons and found that the carrier state was easily produced and lasted a long time (*Johns Hopkins Hospital Bulletin*, February, 1921). Two of the carriers still harboured avirulent diphtheria bacilli after 15 months. The previous administration of diphtheria antitoxin subcutaneously did not prevent the lodgement and growth of the organisms. The inoculation of the organisms did not produce clinical diphtheria, nor any subjective symptoms, nor any objective change in the appearance of the throat. The results of the guinea-pig test for virulence were confirmed when thus tested with human beings. No cases of clinical diphtheria developed among the associates of these artificially produced "healthy carriers" of avirulent diphtheria bacilli. When isolated in pure culture after prolonged sojourn in the human throat, the bacilli were not altered in morphology or in their staining or cultural characters. The bacilli showed no tendency to become virulent as a result of this type of animal passage, either in the carriers who had received diphtheria antitoxin or in those who had not.

(81) Giant Cells in Cultures from Human Lymph Nodes.

During their investigations with cultures from normal and pathological human lymph nodes either in autogenous or homogenous plasma, Warren H. Lewis and Leslie T. Webster have found giant cells resembling markedly the giant cells present in tuberculous lymph nodes (*Journal of Experimental Medicine*, March, 1921). They migrated out from the explants from normal and tuberculous nodes, from nodes in acute and chronic lymphadenitis and Hodgkin's disease and from a metastatic sarcoma. They were most abundant in cultures from tuberculous nodes. The giant cells are similar in structure to the large wandering cells and probably arise from them. The authors are uncertain as to how the giant cells develop. They found no evidence of fusion of the large mononuclear wandering cells; but submit evidence that

the giant cells arise by amitosis of the nuclei without division of the cytoplasm. The living cell shows a large central area of more or less granular character which takes up neutral red with great avidity. Since neutral red is probably taken up by non-living cytoplasmic inclusions only, this central area probably consists of dead material, the waste products of metabolism and of digested foodstuffs such as lymphocytes. The central area is surrounded by a conspicuous zone of fat globules in which the nuclei are embedded. The zone of fat globules is the most conspicuous feature of the living giant cells and of the large wandering cells. There is a great difference between the appearance of the living and the fixed specimens. The globules stain well after formalin fixation with Shariach R. The nuclei vary in number from 2 or 3 to 50 or 60 and often have a horse-shoe-like arrangement about the equator of the central area. Mitochondria are abundant and usually in the form of wavy or curly threads. They are most numerous in the ectoplasm immediately about the fat zone. A distinct, clear, homogeneous ectoplasm envelopes the cell.

(82) Lymphosarcoma, Lymphatic Leukæmia, Leukosarcoma, Hodgkin's Disease.

T. L. Webster has summarized a study of 123 cases of certain allied conditions (*Johns Hopkins Hospital Bulletin*, December, 1920). It seems probable, he says, that lymphosarcoma, lymphatic leukæmia and leukosarcoma are different manifestations of the same disease. The term "lymphadenosis, leukæmic or aleukæmic," would express this idea quite well and would do much to simplify the all too complicated present classification until a definite etiological agent is found. Perhaps the discovery of this agent is not far off. This disease is not a neoplasm but a direct response on the part of the lymphocytes to a chemotactic influence exerted by the disease-causing agent. The presence of this substance in any tissue or organ produces there a local accumulation of lymphoid cells. Diagnosis and prognosis of this disease in its early stage are difficult from the microscopical examination of a single gland, because of its resemblance to certain types of benign lymphadenitis. Evidence of amoeboid activity on the part of the lymphocytes is indicative of a rapidly fatal course. Hodgkin's disease, a distinct entity, may be diagnosed and accurately prognosed from the microscopical examination of a single gland.

PÆDIATRICS.

(83) Acute Arthritis in Infants.

The invasion of joints and peri-articular tissues by pyogenic organisms is not rare, the joint inflammation being usually secondary to an infection of the epiphysis, though frequently the inflammation spreads from the epiphysis to the peri-articular tissues

without affecting the joints proper. F. E. Elmer (*Amer. Journ. of Diseases of Children*, February, 1921) records the study of 73 patients admitted to hospital with acute arthritis during the last 15 years. In the majority of cases the focus of infection could not be definitely determined. Vaginitis was not a common cause. The younger the infant, the greater seemed to be the susceptibility to purulent arthritis. Of the patients studied, 53% were under six months and 74% under one year. The principal organisms found in the pus were the streptococcus and the pneumococcus and, while it would appear that the pneumococcus infection would be limited to one or two joints, the streptococcus and gonococcus were much more likely to affect many joints. Blood cultures were of assistance in the diagnosis. Prognosis is far from hopeful. The older the baby, the better his chances of recovery. The high mortality among very young babies is due in great part to the difficulty of feeding.

(84) Diphtheria Among Immunized Children.

When all the children in an orphan asylum were subjected to the Schick test, it was found that 40% showed a reaction. These "Schick positive" children were all immunized by three doses of toxin-antitoxin, injected at intervals of one week, though in some cases the reaction remained positive for a considerable length of time. Though isolation and testing of all children newly admitted was the rule, and though the food supply was under constant supervision, S. A. Blauner (*Amer. Journal of Diseases of Children*, May, 1921) reports a small outbreak of diphtheria (eight cases) which occurred in a dormitory of 29 children. That the disease was a true Klebs-Loeffler infection was shown by the character of the membrane, the course of the illness, the localization of the infection to one room, the immediate improvement of the children after treatment with antitoxin and the cessation of spread of the disease on administration of prophylactic doses of anti-toxin. These eight cases are evidence that immunization against diphtheria by the present methods is not absolute.

(85) Low Birth Weight.

The "impulse to grow" is now being recognized as a very interesting and important phenomenon in the study of infancy and childhood. Growth *in utero* seems to be divided into two well-defined stages, namely, that of the first six months and that of the last three months. Of the first period not much is known. The second period is very important, because there is great growth at this time and because unfortunately the period is not seldom spent outside, instead of inside the uterus. The following possibilities have always been interesting themes for thought: (1) Is it that the infant, although of full term, for some unknown reason does not obtain the added growth of the last three months and comes into the world very much under weight and

under-developed? (2) Does the infant, if it is born prematurely and thus fails to obtain the stimulus to growth of the last few months, develop after birth more rapidly than the normal, or does it lag behind both physically and mentally? (3) When, if ever, does it "catch up" to the normal? By following up 272 children of low birth weight (2.5 kilograms or under), H. Schwarz and J. L. Kohn (*Amer. Journ. of Dis. of Children*, March, 1921) have prepared an answer to some of the above questions. They find that from 2% to 5% of all births of viable children the children are of low birth weight. The mortality rate during the first month in this type of case is ten times that of the normal and the lower the birth weight, the greater is the mortality. The mortality rate for the year is four and a half times the normal. Infants of low weight, if premature as well, have twice the mortality rate of the full-term children. Twin births do not markedly affect the mortality rate of premature children. Of full-term children, those from single pregnancies have twice as great a likelihood of life as those from twin pregnancies. The gain in weight during the first twelve months is at the same rate as that of the normal child, so that the deficiency is not made up at the end of the first year. Twins do not act differently to children of single pregnancies. The growth length is not made up during the first twelve months. These children seem to attain the normal length sooner than the normal weight. It is only at the end of the fourth year that they compare favourably with children of normal birth weight. The general condition and mentality seem to be those of normal children through infancy and early childhood, although they have a greater tendency to anaemia and rickets.

(86) Thick Cereals in Disorders of Infancy.

Since thick cereal feeding was first instituted in the treatment of pyloric stenosis by L. W. Lauer in 1918, it has been used also with much success in cases of neurotic vomiting and certain types of malnutrition without vomiting. J. I. Durand (*Northwest Medicine*, October, 1920) now advocates this method of treatment in breast-fed infants who suffer from colic and fail to gain in weight. His experience with upwards of 50 infants from three weeks to nine months of age has shown that feeding with 10% and even 15% starch is a safe and often a most valuable therapeutic measure. Of eleven children with definite signs of pyloric obstruction, nine did well. In many cases only two cereal feedings were given daily, the remaining feeds being given from the breast or according to a skimmed milk formula. No diarrhoea or serious nutritional disturbance resulted. The neurotic type of case reacted quite as well to this treatment as the cases of obstruction. With breast-fed babies, where there is colic with either over- or under-nutrition, a similar method was followed. A 3% barley water was given before breast

feeding to the over-nourished and a thick barley water to the under-nourished. The thick cereal mixtures, whether made from farina, rice or barley, may be safely given in amounts of one to four tablespoonfuls at each feeding. They are retained better than liquid feedings, they check peristalsis and pass more easily through the obstructed pylorus. They have the power apparently to allay excessive peristalsis and are the most effective treatment for colic in infancy. Lauer's formula consists of farina, four level tablespoonfuls; dextri-maltose, two level tablespoonfuls; skimmed milk, one-sixth of a litre; water, one quarter of a litre. To make the thick barley water used in under-nourished, colicky infants, take barley flour, one heaped tablespoonful; sugar, one level teaspoonful; and water, one-third of a litre; boiled down to one quarter of a litre. Two teaspoonfuls of the resulting jelly should be given before each or alternate feedings.

(87) Chronic Tuberculous Hilus Pneumonia in Children.

The most frequent form of tuberculosis in children, aside from tuberculous meningitis and miliary tuberculosis, is tuberculous pneumonia, either of the lobar or of the lobular type. Chronic tuberculosis of the type found in adults is almost unknown in children under two years of age. D. Greenberg (*Amer. Journ. of Dis. of Children*, January, 1921) calls attention to a diffuse or parenchymatous tuberculous process involving that portion of the lung immediately adjacent to the hilus. It is characterized by a gradual onset, comparatively mild constitutional symptoms and fairly definite clinical signs (except in the early stages) and, as a rule, it ends in recovery. The entry of infection is probably *via* the respiratory tract. Early Röntgen ray studies reveal considerable enlargement of the tracheo-bronchial glands, with extension into adjacent lung tissue, forming a triangle of which the base is at the hilus and the apex extends along the interlobar fissure. The clinical history is not uniform, but irregular fever occurs early and there is no gain or a slight loss in weight. Cough occurs sooner or later and with it a difficulty in breathing, not suggestive of asthma. Physical signs are variable, both in time of appearance and in intensity. Diminished breathing, with dulness, comes first; then bronchial breathing, with râles at the spreading edges. There may be a leucocytosis. For diagnosis the von Pirquet test is the most reliable. Next in order come sputum examination, the X-rays, lung puncture, with examination of material withdrawn, and the presence of enlarged supra-clavicular glands. Differentiation must be made between this disease and unresolved pneumonia, pulmonary abscess, tracheo-bronchial adenitis, foreign body in the lung, actinomycosis, neoplasm of the lung and streptothrix infection. The prognosis is favourable. Treatment consists of the usual hygienic and dietetic régime.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held on May 27, 1921, at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, Dr. Fourness Barrington, the President, in the chair.

The Chairman issued a hearty welcome to the members of the Society of Dental Science of New South Wales.

Dr. W. B. Dight read a paper on "Dento-Aveolar Sepsis" and demonstrated a number of projected skiagrams of pyorrhoea and apical abscess (see page 136).

Dr. J. G. Edwards read a paper on "Radiography and Dental Affections" and illustrated his remarks by means of a series of skiagrams projected on the screen (see page 138).

Dr. P. Chater Charlton thanked the President and Council of the Branch for having extended to him and to Dr. Moxham an invitation to read papers at the meeting and to the members of the Society of Dental Science of New South Wales to attend the meeting and to take part in the discussion. Never before had the two professions been brought together, as they had during the past few years, through the instrument of dental sepsis. In recent times the education of a dentist had been materially improved and the Society to which he belonged, aimed at raising the ethical standard of dental practitioners to that of the members of the British Medical Association. Dr. Charlton dealt with the urgent need for co-operation between medical and dental practitioners. He referred to the story of a Sydney practitioner, who some years ago had a patient anesthetized and proceeded to remove an ingrowing toenail while a dentist was extracting a tooth. When a surgeon found it necessary to remove portion of the jaw, the dentist's aid was required for the purpose of preventing contractions and for preparing the patient's mouth for a permanent denture. Medical practitioners often did not think of the dentist; thus, after hare-lip operations and operations for cleft palate, it would be advantageous to the patient if a dentist were called in to co-operate with the surgeon. In fractures of the jaw the surgeon frequently kept his patient away from the dentist for many weeks, because of the presence of swelling. It had been demonstrated that it was impossible to treat fractures of the jaw properly with bandages. Apposition might be obtained, but it was impossible to get normal occlusion. The mandible appeared to have an aversion to wiring. It was therefore important to seek the aid of the dentist, who could construct a cradle to keep the fragments together.

Dr. Charlton next dealt with the question of septic roots. If what the Americans stated were true, that every dead tooth should be extracted, the greater part of the work of elder dentists would have been wasted. The term "dead tooth" was a wrong one. To illustrate the truth of his contention, he showed on the screen a skiagram to illustrate that there was complete osmosis from the periodontal membrane, through the canaliculi and granular layer of Tomes, to the dentinal tubules. In these circumstances the tooth, even without the pulp, could not be considered dead. "Pulpless" would be a more correct term to use.

Medical men frequently suggested that in early cases of *pyorrhoea alveolaris* all the affected teeth should be removed. He contended that in the early stages, when there was gingivitis present, attended by foul breath and other symptoms, the mouth could be put in order within a few weeks. He did not claim that pyorrhoea could be cured after it had advanced beyond a certain stage. He maintained, however, that treatment was successful in the less advanced cases. It was often necessary to make the teeth immobile in their sockets before progress could be attained. In regard to prophylaxis, Dr. Charlton pleaded for co-operation between medical and dental practitioners, to educate the mothers to teach their children to clean their teeth at least once a day. He also emphasized the greater importance of cleaning the teeth after meals than of cleaning them before bed-time. In conclusion, Dr. Charlton expressed the opinion that the Department of Public Instruction were not paying sufficient attention to the treatment of dental affections in school children.

Dr. H. C. Moxham read a paper entitled "Vital and Pulpless Teeth in Relation to Disease." This article will be published in next week's issue.

Professor A. E. Mills congratulated the Council for having arranged a meeting at which dental practitioners might participate. He felt indebted to the dental practitioners who had spoken for their frank expressions of view. There was no doubt as to what they meant and it was equally clear that they had reasons for arriving at their views. After having expressed his admiration for the excellent skiagrams exhibited by Drs. Dight and Edwards, he made reference to the radio-lucent areas and ventured to agree with Drs. Charlton and Moxham. There was little doubt that these areas indicated that there was some absorption of the bone, but it did not necessarily follow that an active process was present. It might very well be that the process which had caused these radio-lucent areas had come to an end, just as a syphilitic process traversing some part of the nervous system caused destruction and left what had been termed "dead ashes" in its path. But with regard to the causation of these areas he was unwilling to express very definite views, for it was impossible for anyone with the present limited knowledge of the subject to dogmatize with safety. Certainly he would not subscribe to the view that infective systemic processes were in the majority of cases due to infected areas connected with the teeth, for the tonsils, the post-nasal adenoid tissue and the maxillary antra were often the site from which systemic infections might arise. Furthermore, there was little doubt that the appendix acted as a source of infection. While it might be accepted that some cases of osteo-arthritis had their origin in infections connected with the teeth, it was taking too narrow a view to hold that all cases arose from such a source. It should be remembered that when an osteo-arthritis process developed in one joint, that joint might become a source of infection for other joints, even when the original dental infection had been removed.

Mr. J. Houghton Bradley agreed with the views expressed by Drs. Charlton and Moxham. He held that many teeth were extracted quite unnecessarily. On the other hand, there was no doubt that many were left in the patients' jaws which should be taken out. He was not prepared to accept the evidence of every radiogram. When a medical practitioner found that his patient was suffering from a systemic infection and the radiologist discovered signs which were probably those of an infected area, it would be advisable to remove the teeth. They should take no risks.

Dr. W. Stewart Ziele spoke in favour of root resection of incisor teeth. If this were done, extraction would be avoided in many instances. In regard to fracture of the jaw, he echoed Dr. Charlton's plea for co-ordination between the surgeon and the dentist. In some cases splints should be used in the place of wiring, in order to preserve the bite.

Dr. John Flynn dealt with the subject of focal infection and its elective localization. He thought that the views held in regard to dental infection were of a similar nature to those held a few years ago concerning toxemia of colonic origin. These views were elaborated by one person stating that it might be so and another person repeating the axiom and stating that it was so. In regard to rheumatoid arthritis a considerable change had taken place in recent years in the attitude toward the nature of the condition. Much emphasis was laid on the infection and yet in a large percentage of cases no infective focus had been demonstrated. Goadby had injected bacteria found in pyorrhoea in a rheumatoid patient intravenously, subcutaneously and intraperitoneally into rabbits. No arthritic manifestations had been produced. When the material had been injected directly into the joints arthritic changes had been noted. More recently some light had been thrown on the subject of elective localization by Rosenow and other American workers. If this work were confirmed and extended the wholesale devitalization of teeth and the filling of infected root canals without due regard to asepsis, would have to be replaced by the surgical removal of the teeth and of the periodontal infection. While Dr. Flynn deprecated widespread orders to extract teeth unless they were obviously diseased, he was prepared to suspend judgement until further evidence on the question was available.

Mr. R. Morse Withycombe issued a challenge to Drs. Dight and Edwards. He regarded diagnosis as the most important part of dentistry and medicine. It was not possible for a radiologist to diagnose a condition without full information concerning the clinical history. If an operation were

performed, the post-operative findings always educated the operator. Dr. Edwards claimed that he could diagnose the various septic affections around the roots of teeth from the skiagraphical appearances. He, the speaker, maintained that this was impossible. There was another danger connected with the radiographic diagnosis, namely, that it was not possible to determine when a granuloma was doing harm. The majority of granulomata were harmless. In regard to the septic infections, Nature offered protection by walling them off. The imprisoned bacteria were subsequently killed. At a later stage these infected foci were found to be quite small and to contain nothing but leucocytes. Mr. Withycombe expressed the opinion that in low-grade, non-purulent infections associated with a chronic mild tissue reaction, clinical signs of active local disturbance were absent. This condition was very dangerous and difficult to diagnose. He found the microscope and an aspirator passed through the foramen of a tooth the most valuable aids in diagnosis.

Dr. Dight had said that *pyorrhoea alveolaris* could not be diagnosed without X-rays. Mr. Withycombe stated most emphatically that this was not the case. He had daily evidence that the most advanced cases of pyorrhoea could be both diagnosed and cured by modern methods. In conclusion, he stated that streptococci worming their way insidiously did more harm than the organisms concerned in the ordinary pus-flowing cases.

Dr. Harvey Sutton, O.B.E., said that he had found the discussion most fascinating. Dr. Dight had dealt with the association of systemic infection and infection of teeth. The idea was very old; indeed, it dated back as far as Hippocrates, who had shown that there was an association between irregular teeth and running ears—so typical of post-nasal growths. Dr. Hunter had insisted that every patient in a hospital ward should have each tooth cleaned with one in eighty carbolic acid and that no patient should be discharged from a hospital, especially in an anemic condition, until all teeth had been set right. Dr. Sutton held that dentists should form part and parcel of every large hospital. He had seen from time to time dramatic cures of *ostitis deformans* after local dental treatment. He admitted that Dr. Charlton had spoken truly in regard to the dental activities of his department, but that he had not spoken the whole truth. The child at the dental clinic learned that teeth were worth attending to from the fact that its own teeth were being attended to and by direct "talks" given at the clinics. Dr. Sutton claimed that this lesson should have a far-reaching result on the mouths of the people in the course of a few years. Dental hygiene would be taught in the schools within a short time. Men and women were already going out from the Teachers' College to teach lessons concerning the health of the teeth and the health of the body.

In regard to the important question of oral sepsis, he had come to the conclusion that the dental condition was often a *tertium quid*, a deciding factor which determined ill-health. Hunter had taught that oral sepsis was not the cause of pernicious anemia, but often determined the seriousness of the attack. They had found that 10% of children at the age of eight years had abscesses in their mouths and that another 10% had fistulae. He agreed with the previous speakers that oral sepsis could only be attacked with a good prospect of success if the two professions collaborated for the purpose.

Dr. W. H. Weston, M.C., dealt with the question of pyorrhoea. He stated that it was a local disease and that *Streptococcus viridans* was the principal organism present and was probably concerned with the causation of various gastric and cardiac troubles. This organism had been discovered in the mouth of an infant six hours after birth. No other organism appeared until the time of the eruption of the deciduous teeth. He suggested that if all the teeth were extracted, streptococci would still persist in the mouth. He thought that they could not be the real cause of pyorrhoea. In regard to the question of elective foci, he thought that it was just as reasonable to assume that gastric or nasal trouble led to the infection of the teeth as to assume that systemic disease was due to primary dental infections. He held the opinion that, by reducing the number of streptococci in the mouth, both local and general conditions could be improved very considerably.

Dr. A. H. Tebbutt, D.S.O., expressed the opinion that bacteriologists should be ashamed of themselves for having allowed the information concerning the causal organisms of pyorrhoea to remain on so unscientific a footing. Many years ago Goadby had worked at this subject and had discovered certain facts. No progress had been made since that time. Dr. Tebbutt was occasionally asked to make cultures from the roots of extracted teeth. Unfortunately, it was impossible for him to find time to work out the type of streptococci isolated from the mouth in various dental affections.

Mr. L. S. Beckett exhibited five sets of dental films. The first was a skiagram revealing two translucent areas in the apical region. Both could have been dealt with by conservative treatment, had there not been a granuloma due to root perforation. In the second film there was a larger area of involvement, apparent harmless. In addition, there was a granuloma. The tooth was removed as a precaution against possible future trouble. In the third skiagram there was evidence of old-standing trouble in the apical regions of one tooth, which had previously caused symptoms. Clinically no symptoms were present in the other two teeth and physical examination also failed to elicit any signs. The patient had had an attack of measles ten years before and had suffered from neuritis and anemia since. The first tooth had been removed and slight improvement followed. The second tooth was then removed with no improvement. The removal of the third tooth was followed by suppuration in the antrum. The suppuration cleared up and the patient had recovered completely. The fourth film was a skiagram from a case of a former chronic abscess of eight years' standing. The patient's condition was unsatisfactory. His colour was poor, he was losing his memory and he was becoming irritable. The tooth had been extracted twelve months before, but the skiagram showed that the socket had remained open. The socket was curetted and improvement followed. The fifth film was shown to demonstrate the fact that zinc oxide, used as a root filling for teeth, was not radio-lucent. In conclusion, Mr. Beckett dealt with the general state of the patient's health as a determining factor in regard to the damaging effect of organisms at the apex of teeth.

Dr. B. J. Harrison dealt with the difficulty in the interpretation of dental skiagrams. He had taken a large series of skiagrams of a skull from many different aspects. He pointed out that the ordinary skiagram of a molar tooth depicted only two of its roots. It was therefore necessary to take more than one picture and to vary the angle, in order to examine the condition of all three roots. In regard to the relation of the teeth to the antrum, pictures taken from different angles gave totally different impressions. He held that it was necessary for diagnostic purposes to arrange the picture in such a way that the floor of the antrum appeared as a perfectly clean line.

Dr. A. L. Lyell expressed the opinion that, before anyone could pass a valuable opinion concerning a dental skiagram, he should be well acquainted with the radiographic appearances of the teeth at every age. The dental radiographer should therefore have available a series of standard skiagrams of healthy teeth in children from the age of the appearance of the first deciduous tooth onwards. This would enable him to judge the normal process of absorption. In the next place, Dr. Lyell pointed out that in a well-kept, healthy mouth a deep pocket often existed on the lingual surface. This pocket could not be seen in the skiagram.

Mr. C. Burchell stated that it was incorrect to speak of alveolar abscess. These abscesses were truly dental. He advocated the cleaning of the teeth after each meal. This was much more important than the cleaning at night-time.

Dr. Fourness Barrington, in closing the discussion, expressed the indebtedness of the members to the readers of the papers and to those who had participated in the discussion. He was convinced that the value of dental hygiene could not be overstated as a factor in the furtherance of the health of the community. The debate had further brought out that dental sepsis produced wide-spread and baneful effects on the health of the individual. In the third place, they had listened to an unanswerable argument in favour of the co-operation between the physician, surgeon,

radiologist and dentist. This co-operation was needed, not only when dental affections were present, but also in cases such as a fracture of the jaw.

The replies were brief. Dr. Charlton said that, after hearing what Dr. Harvey Sutton had told them, he would certainly wish to modify his criticism of the medical activities of the Department of Public Instruction.

Timothy John O'Sullivan, Esq., M.B., B.S., 1921 (Univ. Melbourne), St. Vincent's Hospital, Melbourne, has been elected a member of the Victorian Branch.

The undermentioned have been nominated for election as members of the New South Wales Branch:

Kenneth Kinross Spence, Esq., M.B., Ch.M., 1920 (Univ. Sydney), Iredale Avenue, Cremorne.

A. M. Edwards, Esq., M.B., Ch.M., 1921 (Univ. Sydney), Lewisham Hospital.

Michael Francis Fitzsimmons, Esq., M.B., Ch.M., 1921 (Univ. Sydney), Lewisham Hospital.

William Joseph Dalton, Esq., M.B., 1921 (Univ. Sydney), Lewisham Hospital.

Notices.

The Scientific Committee of the Victorian Branch regret that they have been forced to make some slight alterations in the order of papers already announced. The list of meetings as amended is as follows:

August 3, 1921:

September 7, 1921.—Conjoined Meeting with the Section of Preventive Medicine. Subject: The prevention of tuberculosis. The medical members of the Public Health Association of Australasia will be invited to attend this meeting.

October 5, 1921:

Mr. Fay Maclure: Paper on the making and fitting of modern splints and fracture beds, together with a display of splints. (Meeting at the Alfred Hospital.)

November 2, 1921:

Discussion on Caesarean Section. (Names of speakers to be announced later.)

Correspondence.

THE WASSERMANN TEST.

Sir: May we take this opportunity of congratulating Dr. Cyril H. Shearnan on his most opportune and important letter concerning the Wassermann reaction which appeared in the columns of *The Medical Journal of Australia* on July 9. We enthusiastically support his three main contentions, viz., that there is great need for the adoption throughout Australia of some uniform and modern method for this test; that each laboratory should compare its own particular method with that of Griffiths and Scott and that some central laboratory should be established for standardizing reagents and investigating border-line serological reactions. The scope of its activities might also include the instruction of laboratory workers in the technical details of the modern Wassermann reaction.

During the past decade there has been a number of improvements in the technique of the original test. The more important of these may be summarized as follows:

- (1) The adoption of quantitative methods, multiple tubes being utilized and either the amount of complement or the quantity of patient's serum varied.
- (2) The more accurate titration of the various reagents used in the test.
- (3) Substitution of reinforced antigens for Wassermann's original extract of syphilitic liver, i.e., such antigens as the acetone soluble and insoluble lipoidal extracts or the cholesterolized alcoholic extract of heart muscle.
- (4) The utilization of ice-chest fixation over a period of several hours during the first stage of the reaction, instead of the customary period for one hour at 37° C.

Using a multiple tube ice-chest technique, our results in an investigation of several thousand cases have been so remarkably satisfactory from the clinical viewpoint that we feel justified in strongly urging the inclusion of the above-mentioned improvements in any standard modern method.

Though cognizant to some degree of the familial nature and latent tendencies of syphilis, the profession has failed to apply this knowledge to the practice of medicine.

Only by the routine application of the Wassermann reaction can the full measure of this astounding latency and the intricate family ramifications of this disease be correctly and fully appreciated.

Ample illustration of these points is afforded by our recent serological survey of all obstetric cases attending the Women's Hospital, Melbourne. The preliminary results as communicated to the Gynaecological and Obstetrical Society of Victoria are set out in the subjoined tables.

TABLE "A."—OBSTETRIC CASES.

Type of Case.	Number Examined.	Number Positive.	Percentage Positive.
Ante-Natal	225 ..	17 ..	7.5
Labour Ward	108 ..	11 ..	10.2
Abortion	47 ..	9 ..	19.1
Total	380 ..	37 ..	9.75

As Table "A" shows, 9.75% of all cases attending the Maternity Department yielded a strongly positive reaction. Furthermore, with one or two possible exceptions, the cases were latent and gave no other clinical indication of syphilitic infection. That roughly 10% of the Maternity Hospital population are syphilitic is in itself a sufficiently striking fact, but translated in terms of foetal deaths and congenital syphilis, its significance is indeed appalling.

TABLE "B."—NEO-NATAL INFANTS.

Type of Mother.	Infants Examined.	Number Positive.	Percentage Positive.
Wassermann Positive ..	13 ..	12 ..	92.3
Wassermann Negative ..	93 ..	0 ..	Nil
Total	106 ..	12 ..	11.3

Table "B" takes no account of still-births or abortions, but by giving the result of routine Wassermann tests as applied to the new-born, it brings out the fatal persistence of syphilis in the offspring of syphilitic mothers. Moreover, the table illustrates the latency of the infection since none of these syphilitic infants exhibited clinical manifestations at birth.

By following up the collaterals of Wassermann positive mothers, the figures shown in Table "C" were obtained. Small as be the numbers, they nevertheless serve to indicate the minimal incidence of syphilis (as represented by a positive Wassermann reaction) in the families of this hospital class.

TABLE "C."—COLLATERALS OF SYPHILITIC MOTHERS.

Type of Collateral.	Number Examined.	Number Positive.	Percentage Positive.
Husband	17 ..	6 ..	35.3
Other Children	13 ..	9 ..	69.2
Total	30 ..	15 ..	50.0

The problems in connexion with the ante-natal detection and treatment of latent maternal syphilis with the immediate diagnosis and treatment of neo-natal syphilis and with the investigation and control of familial syphilis are most inviting avenues for public health work. They all depend, however, upon the routine adoption of an accurate and reliable Wassermann test. Such knowledge justifies not only our concurrence in Dr. Shearnan's suggestions, but also our plea for the routine adoption of the modern Wassermann reaction in every patient attending any metropolitan hospital. We feel assured that the data obtained by such a procedure regarding latent and familial syphilis would so vividly impress the clinician, the medical student and the public health worker that similar methods would be more widely adopted in practice. While fully admitting that at present this procedure is not applicable to private practice, yet by conscientiously investigating the families of known syphilis and by the routine testing of the cord blood of new-born

infants, the medical practitioner has two efficient means of detecting and diminishing the incidence of syphilis in the community.

Yours, etc.,

N. HAMILTON FAIRLEY }
ROBERT FOWLER }

The Walter and Eliza Hall Institute of Research in Pathology and Medicine,
July 25, 1921.

QUEENSLAND NURSES' AWARD.

Sir: In the year 1910 and thereabouts I should have quite agreed with your leading article in regard to the Queensland Nurses' Association's endeavour to obtain better wages and working conditions, but at the present time I must admit that I am in absolute sympathy with the nurses and congratulate them on obtaining the award.

In my experience they are more conscientious and more entitled to be called "workers" than the average patient they are called upon to nurse in public hospitals. Yet we find that the so-called workers are receiving to-day far more than they are really worth, so much so, that as the *Sydney Bulletin* remarks, Australia is gradually "closing up" as the industries cannot pay the award wages. You, sir, quite rightly regard the nurses as apprentices, but contrast their wages with that of a boy in the engineering trade who earned £3 for one night's work, but if that boy were injured he would be nursed all night by a girl drawing a few shillings a week.

I am cordially in agreement with the Mayor of South Brisbane, who advises that the acts of conciliation and arbitration should all be burned, but until they are, let the nurses have their award and let the people who use the public hospitals, pay for it out of their, in most cases, absurd increases in wages.

Yours, etc.,

M. D. NESBITT.

Lancefield, Brisbane,
July 27, 1921.

INFECTIOUS DISEASES AND THE PUBLIC HEALTH DEPARTMENTS OF THE AUSTRALIAN STATES.

Sir: A leading article appeared in a recent number of *The Medical Journal of Australia* ("An Economic Problem"), June 18, 1921, which is so misleading in its general tenor and so inaccurate in many of its statements that it cannot be allowed to go unchallenged.

Briefly the article in question alleges that typhoid fever and diphtheria are on the increase in all Australian States, in respect of both incidence and mortality, and that the mortality from pulmonary tuberculosis does not show a downward curve in any of the States. The conclusion is announced that the Health Departments of the States show a record of "missed opportunity and irresponsible failure" and that they should "make room for others more determined to break down the obstacles standing in the way of success."

The gravamen of the charge against the Health Departments of the States is based upon the behaviour of typhoid fever, which is pre-eminently the infectious disease upon which sound methods of administration are believed to have a controlling effect.

The article alleges that in "none of the States does the curve of incidence from typhoid fever tend to take a downward direction" and "similarly the number of deaths is increasing." These statements are incorrect. The real facts are that the death rate of the whole of Australia from typhoid fever is steadily falling. It fell from 0.26 per 1,000 of the population in the year 1900 to 0.06 per 1,000 in the year 1920 (a fall of 77%). Complete notification figures for the Commonwealth are not available prior to the year 1909, but the incidence rate of that year was 1.48 per 1,000, while the incidence rate for 1920 was 0.57 per 1,000, a fall of 60% in 11 years. The fall is shown by the official figures to have been fairly regular year by year.

In every State in the Commonwealth there has been a more or less similar decline in the incidence and mortality from typhoid fever.

In the case of pulmonary tuberculosis notification is not universal in Australia and the incidence cannot be stated, but the mortality from this cause in the Commonwealth has fallen from 0.92 per 1,000 of the population in the year 1900 to 0.58 in the year 1920, a fall of 37%. The statement in your leading article that the tendency of the curve has not been downward is, of course, incorrect.

As regard diphtheria, the facts as shown by the official figures differ from those of typhoid fever and tuberculosis, inasmuch as there has been no regular fall in either the mortality or the incidence of diphtheria in recent years. To anyone who has experience in dealing with vital statistics, there is nothing amazing in this fact. It is well known that diphtheria is one of those diseases which are specially apt to manifest themselves in cycles of prevalence. The whole of Australasia has recently been and is still passing through a wave of such prevalence of diphtheria. The cause of these cyclical manifestations is not as yet clearly known. Sir Arthur Newsholme regards them as conditioned in the case of diphtheria at all events "by meteorological and telluric conditions which are very remote from those supposed by most medical men to be associated with the disease."

I regret to have been compelled to write at such length and in such plain terms. The occasion, however, demanded it.

The delay between the publication of the criticized article and the submission to you of this communication has been largely due to the necessity of ascertaining from the several Australian States the statistics on the incidence of the diseases dealt with. The mortality rates were kindly worked out for me by the Government Statistician upon the figures presented in Commonwealth publications.

Yours, etc.,

W. A. ARMSTRONG,

Director-General of Public Health, New South Wales.
Sydney, August 6, 1921.

[We are greatly indebted to Dr. Armstrong for his very measured criticism of the article to which he refers. The matter at issue is of great importance, since it involves the welfare of the community taken as a whole; we hope, therefore, that a full discussion in these columns will follow. Dr. Armstrong takes us to task for misleading opinions and inaccurate statements. In regard to the latter he claims that the statement that enteric fever throughout the Commonwealth is increasing in incidence and mortality is incorrect. The figures for the last four years of the number of notifications are as follows:

1917	2,740
1918	2,381
1919	2,263
1920	2,995

Unfortunately, the records of notifications in all the States are not available for 1916. A glance at the tables published in this *Journal* during the past four years will show that in the individual States the curves have been irregular and that a tendency downwards is certainly not apparent. The number of deaths during the past five years from enteric fever in the Commonwealth were 284, 285, 251, 273 and 312 in 1916, 1917, 1918, 1919 and 1920 respectively.

In regard to pulmonary tuberculosis, the mortality figures are as follows:

1916	3,064
1917	2,883
1918	3,038
1919	3,365
1920	3,078

In 1917 the death-rate per 1,000 of population was approximately 0.57, while in 1919 it was 0.67 and in 1920 0.62. Again, the mortality curves in the several States during the past five years have shown irregularities, but no definite tendency downwards.

Dr. Armstrong quotes figures at the beginning and at the end of long periods of years. It appears to us that preventive medicine has become an actual science only within very recent years and that it is therefore misleading to extend a statistical inquiry far back. The main thesis of the leading article paraphrased might read that enteric fever, pulmonary tuberculosis and diphtheria are preventable diseases and that their incidence to-day both in Australia

and in every other country in the world is appallingly high. It is not sufficient to await the possible beneficial effects of the old-fashioned, slowly acting measures of hygiene of last century. Sir Arthur Newsholme may find comfort in the alleged causes of the wave-like incidence of diphtheria, but his opinion savours somewhat of a council of despair. At the same time, others have, ignoring the alleged mysterious influences, traced the "previous case" and the carrier and have checked outbreaks notwithstanding the persistence of unfavourable meteorological conditions. At a later date it is proposed to deal with the question of the prevention of these three diseases in greater detail.—Ep.]

Books Received.

- A CATALOGUE AND GUIDE TO COLLECTION OF LANTERN SLIDES DEMONSTRATING THE SURGICAL ANATOMY OF THE TEMPORAL BONE; 1921. London: H. K. Lewis & Company, Limited; Crown 8vo., pp. 33, interleaved. Price of 200 slides in five boxes, with album of photographs and catalogue, £30.
- MANUAL OF OPERATIVE SURGERY, by John Fairbairn Binnie, A.M., C.M., F.A.C.S.; Eighth Edition, revised and enlarged, 1921. Philadelphia: F. Blakiston's Son & Company; Royal 8vo., pp. 1,311, with 1,628 illustrations, a number of which are printed in colours. Price, \$12.00 net.
- MATERIA MEDICA AND PHARMACY: For Medical Students, with an Appendix on Incompatibility, by Reginald R. Bennett, B.Sc., F.I.C., Fourth Edition; 1921. London: H. K. Lewis & Company, Ltd.; Foolscap 8vo., pp. 264. Price, 7s. 6d. net.
- DISEASES OF THE EAR, NOSE AND THROAT IN CHILDHOOD, by Douglas Guthrie, M.D., F.R.C.S.; 1921. London: A. & C. Black, Ltd.; Post 8vo., pp. 88, illustrated by 30 figures. Price, 5s. net.
- TUBERCULOSIS AND HOW TO COMBAT IT: A BOOK FOR THE PATIENT, by Francis M. Pottenger, A.M., M.D., LL.D., F.A.C.P.; 1912. St. Louis: C. V. Mosby Company; Demy 8vo., pp. 273. Price, \$2.00.
- PHYSICAL DIAGNOSIS, by W. D. Rose, M.D.; Second Edition, 1921. St. Louis: C. V. Mosby Company; Royal 8vo., pp. 236. Price, \$8.50.
- COMMONWEALTH OF AUSTRALIA QUARANTINE SERVICE: SERVICE PUBLICATION, No. 19. INQUIRY INTO THE PREVALENCE OF TUBERCULOSIS AT BENDIGO, March-August, 1920, by D. G. Robertson, M.D., D.P.H.; 1920. Issued under the authority of the Minister for Trade and Customs; Royal 8vo., pp. 70.
- TRUTH ABOUT VENEREAL DISEASE, by Marie Carmichael Stopes; 1921. London: G. P. Putnam's Sons, Ltd.; Sydney: Cole's Book Arcade; Crown 8vo., pp. 52. Price, 3s. 9d.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page ix.

University of Sydney: Professor of Psychiatry.

Women's Hospital, Melbourne: Medical Superintendent.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phoenix Mutual Provident Society.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Manchester Unity Independent Order of Oddfellows. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.)	All Contract Practice Appointments in Western Australia.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington New Zealand.

Diary for the Month.

- Aug. 23.—N.S.W. Branch, B.M.A.: Medical Politics Committee: Organization and Science Committee.
- Aug. 25.—S. Aust. Branch, B.M.A.
- Aug. 25.—Clinical Meeting at the Hospital for Sick Children, Brisbane.
- Aug. 26.—N.S.W. Branch, B.M.A.
- Aug. 26.—Q. Branch, B.M.A., Council.
- Aug. 31.—Vic. Branch, B.M.A., Council.
- Sept. 2.—Q. Branch, B.M.A.
- Sept. 7.—Vic. Branch, B.M.A.
- Sept. 8.—N.S.W. Branch, B.M.A.: Last day for nomination of two candidates for election to Federal Committee.
- Sept. 9.—N.S.W. Branch, B.M.A., Clinical.
- Sept. 9.—S. Aust. Branch, B.M.A., Council.
- Sept. 9.—Q. Branch, B.M.A., Council.
- Sept. 13.—Tas. Branch, B.M.A.
- Sept. 13.—N.S.W. Branch, B.M.A.: Ethics Committee.
- Sept. 14.—Melb. Paediatric Society (Vic.).
- Sept. 15.—Vic. Branch, B.M.A., Council.
- Sept. 16.—Central Southern Med. Assoc. (N.S.W.).
- Sept. 20.—N.S.W. Branch, B.M.A.: Executive and Finance Committee.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated. All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney. (Telephone: B. 4635.)